

PLAB DOABLE

Subject Wise



SAMPLE



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ANATOMY

SAMPLE



1.	<p>A 37-year-old man has a non-healing ulcer on the skin of the right medial malleolus. Which SINGLE lymph node is likely to be involved?</p> <p>A. Axillary lymph nodes</p> <p>B. Pre-aortic lymph node</p> <p>C. Aortic lymph node</p> <p>D. Inguinal lymph node</p> <p>E. External iliac lymph nodes</p>
2.	<p>A 35-year-old man sat cross-legged for 30 minutes after which he found himself unable to dorsiflex his left foot and had loss of sensation in the web space between the big toe and the second toe. What is the SINGLE most likely anatomical structure to be affected?</p> <p>A. Femoral nerve</p> <p>B. Sural nerve</p> <p>C. Sciatic nerve</p> <p>D. Deep peroneal nerve</p> <p>E. Superficial peroneal nerve</p>
3.	<p>Which anatomical structure is located at the level of the first lumbar vertebra (L1)?</p> <p>A. McBurney's point</p> <p>B. Stellate ganglion</p> <p>C. Deep inguinal ring</p> <p>D. Xiphoid process</p> <p>E. Transpyloric plane</p>
4.	<p>A 23-year-old man is having difficulty in speaking following a stab wound to the right of his neck. On tongue protrusion test, the tip of tongue is deviated to the right. Which of the following nerve is the SINGLE most likely to be affected in this patient?</p>



	<p>A. Facial nerve</p> <p>B. Hypoglossal nerve</p> <p>C. Vagus nerve</p> <p>D. Trigeminal nerve</p> <p>E. Glossopharyngeal nerve</p>
5.	<p>A 32-year-old woman has weakness of both her hands after a fall down a flight of stairs. An X-ray was ordered. Which is the SINGLE lowest vertebrae that needs to be seen in the cervical X-ray to help diagnose the injury?</p> <p>A. C4/C5</p> <p>B. C5/C6</p> <p>C. C6/C7</p> <p>D. C7/T1</p> <p>E. C8/T1</p>
6.	<p>Which artery descends into the anterior interventricular groove?</p> <p>A. Acute marginal branch</p> <p>B. Left anterior descending artery</p> <p>C. Septal branches</p> <p>D. Circumflex artery</p> <p>E. Right coronary artery</p>
7.	<p>What important landmark is placed at the 5th intercostal space at the anterior axillary line?</p> <p>A. Apex beat</p> <p>B. Chest drain insertion</p>



	<p>C. Stellate ganglion</p> <p>D. Transpyloric plane</p> <p>E. Vena cava opening into the diaphragm</p>
8.	<p>A 73-year-old woman with rheumatoid arthritis is unable to extend the fingers of her right hand at the metacarpophalangeal joint and interphalangeal joints following a fall. What is the SINGLE most likely tendon to have been damaged?</p> <p>A. Extensor carpi radialis</p> <p>B. Extensor carpi ulnaris</p> <p>C. Extensor digitorum</p> <p>D. Extensor indicis</p> <p>E. Flexor digitorum profundus</p>
9.	<p>A 24-year-old man is hit by a baton just above the knee on his right leg. This is followed by loss of motor control of the leg. His foot drops and is unable to dorsiflex his foot. There is loss of sensation over the front and outer half of the leg and dorsum of the foot. What is the SINGLE most likely anatomical structure to be affected?</p> <p>A. Sural nerve</p> <p>B. Common peroneal nerve</p> <p>C. Tibia nerve</p> <p>D. Lateral plantar nerve</p> <p>E. Medial plantar nerve</p>
10.	<p>A 55-year-old man with rheumatoid arthritis struck his hand against a door. On examination, he could extend the interphalangeal joint of his right thumb but the metacarpophalangeal joint of the thumb remained flex. What is the SINGLE most likely tendon to have been damaged?</p> <p>A. Extensor carpi ulnaris</p> <p>B. Extensor digitorum</p> <p>C.</p>



	<p>Extensor indicis</p> <p>D.</p> <p>Extensor pollicis brevis</p> <p>E.</p> <p>Extensor pollicis longus</p>
11.	<p>A 63-year-old lady with a BMI of 32 has pigmentation on her legs. Dilated veins could be seen on the lateral aspect of her ankle. Which SINGLE structure would be involved?</p> <p>A.</p> <p>Short saphenous vein</p> <p>B.</p> <p>Long saphenous vein</p> <p>C.</p> <p>Deep venous system</p> <p>D.</p> <p>Popliteal veins</p> <p>E.</p> <p>Sapheno-femoral junction</p>
12.	<p>A 24-year-old patient was lying down on the operating table in a position with his arms hanging down for 3 hours. Soon after he woke up, he complains of numbness and weakness on his left hand and has a wrist drop. There is a loss of sensation over a small area between the dorsal aspect of 1st and 2nd metacarpals. What is the SINGLE most likely structure to be damaged?</p> <p>A.</p> <p>Radial nerve</p> <p>B.</p> <p>Median nerve</p> <p>C.</p> <p>Ulnar nerve</p> <p>D.</p> <p>Axillary nerve</p> <p>E.</p> <p>Suprascapular nerve</p>
13.	<p>A 55-year-old man presents with an ulcer of the scrotum. Which is the SINGLE most likely lymph node involved in its lymphatic drainage?</p> <p>A.</p> <p>External iliac lymph node</p> <p>B.</p> <p>Pre-aortic lymph node</p> <p>C.</p> <p>Aortic lymph node</p> <p>D.</p>



	<p>Inguinal lymph node</p> <p>E.</p> <p>Cervical lymph node</p>
14.	<p>What is the SINGLE most likely anatomical structure to be pierced when inserting a drain in the mid-axillary line?</p> <p>A.</p> <p>External iliac muscle</p> <p>B.</p> <p>Linea alba</p> <p>C.</p> <p>Rectus sheath muscle</p> <p>D.</p> <p>Conjoined tendon</p> <p>E.</p> <p>Intercostal muscles</p>
15.	<p>A 32-year-old patient presents to Accident & Emergency with a deep cut on the surface of her palm and the surface of the back of her wrist. She has an inability to extend the distal phalanx of her ring finger. What is the SINGLE most likely structure affected?</p> <p>A.</p> <p>Extensor digitorum</p> <p>B.</p> <p>Branch of ulnar nerve</p> <p>C.</p> <p>Flexor digitorum profundus</p> <p>D.</p> <p>Palmaris brevis</p> <p>E.</p> <p>Branch of median nerve</p>
16.	<p>A 55-year-old man with a history of a stroke a year ago has severe difficulty remembering events in his life. This includes important events like the year he married his wife. Along with the long-term memory impairment, he has altered sexual behaviour which has been seen after the stroke. He is also noted to have a visual defect after the stroke. What is the SINGLE most likely visual defect?</p> <p>A.</p> <p>Homonymous hemianopia</p> <p>B.</p> <p>Upper homonymous quadrantanopias</p> <p>C.</p> <p>Lower homonymous quadrantanopias</p> <p>D.</p> <p>Binasal hemianopia</p> <p>E.</p>



	Bitemporal hemianopia
17.	<p>What SINGLE anatomical landmark correlates to the tip of the 9th costal cartilage?</p> <p>A. Fundus of the gallbladder</p> <p>B. Deep inguinal ring</p> <p>C. Termination of the spinal cord</p> <p>D. Stellate ganglion</p> <p>E. Inferior vena cava passing through the caval opening</p>
18.	<p>A 34-year-old man has a white patch on the margin of the mid-third of his tongue. Which is the SINGLE most likely lymph node involved?</p> <p>A. External iliac lymph node</p> <p>B. Submandibular lymph node</p> <p>C. Submental lymph node</p> <p>D. Deep cervical lymph node</p> <p>E. Aortic lymph node</p>
19.	<p>A 12-year-old boy presents with a painful swollen knee after a sudden fall on his right knee. The pain is localized below the knee cap. Which SINGLE anatomical structure is most likely to be affected?</p> <p>A. Semimembranosus bursa</p> <p>B. Prepatellar bursa</p> <p>C. Pretibial bursa</p> <p>D. Suprapatellar bursa</p> <p>E. Pes anserine bursa</p>



20.	<p>A 60-year-old man screwing his cupboard to the wall when he suddenly felt a rupture at the cubital fossa resulting in a swollen elbow with weakness on flexion and supination. A lump in the forearm is seen. What is the SINGLE most likely diagnosis?</p> <p>A. Hand flexor tendon rupture</p> <p>B. De Quervain's disease</p> <p>C. Biceps tendon rupture</p> <p>D. Tennis elbow</p> <p>E. Golfer's elbow</p>
21.	<p>A 33-year-old man complains of double vision when he looks to the right. Which is the SINGLE most likely nerve to be involved?</p> <p>A. Left abducens</p> <p>B. Right abducens</p> <p>C. Left trochlear</p> <p>D. Right trochlear</p> <p>E. Right oculomotor</p>
22.	<p>Which anatomical structure is located halfway between the suprasternal notch and pubic symphysis?</p> <p>A. Fundus of the gallbladder</p> <p>B. McBurney's point</p> <p>C. Stellate ganglion</p> <p>D. Deep inguinal ring</p> <p>E. Transpyloric plane</p>
23.	<p>A 32-year man presents to A&E with a fracture dislocation of his right elbow. He complains of loss of sensation in his little finger and ring finger. Which is the SINGLE most likely nerve to be involved?</p>



	<p>A. Median nerve</p> <p>B. Ulnar nerve</p> <p>C. Radial nerve</p> <p>D. Superficial branch of radial nerve</p> <p>E. Axillary nerve</p>
24.	<p>A 36-year-old male involved in a street fight presents with bruises and deformity of his upper part of leg. X-ray shows a fracture of the neck of fibula. What is the single most associated nerve injury?</p> <p>A. Sciatic nerve</p> <p>B. Femoral nerve</p> <p>C. Musculocutaneous nerve</p> <p>D. Common peroneal nerve</p> <p>E. Tibial nerve</p>
25.	<p>A 15-year-old boy complaining of double vision when climbing down the stairs after being hit on the face. The images appear above one another. He also notices double vision when he looks to the right. Which is the SINGLE most likely nerve to be affected?</p> <p>A. Left Abducens nerve</p> <p>B. Left Trochlear nerve</p> <p>C. Left Oculomotor nerve</p> <p>D. Right Trochlear nerve</p> <p>E. Right Abducens nerve</p>
26.	<p>A 64-year-old woman has difficulty in moving her right shoulder on recovering from surgery of the posterior triangle of her neck. What is the SINGLE most likely anatomical structure to be affected?</p> <p>A.</p>



	<p>Accessory nerve</p> <p>B.</p> <p>Glossopharyngeal nerve</p> <p>C.</p> <p>Hypoglossal nerve</p> <p>D.</p> <p>Vagus nerve</p> <p>E.</p> <p>Brachial plexus</p>
27.	<p>A camel rider sustained an injury to the lateral side of his right leg just below the knee caused by the camel stick. The site is slightly bruised and tender to touch. He is unable to either dorsiflex or evert the foot. There is loss of sensation over the front and outer half of the leg and dorsum of the foot. What is the SINGLE most likely anatomical structure to be affected?</p> <p>A.</p> <p>Sural nerve</p> <p>B.</p> <p>Common peroneal nerve</p> <p>C.</p> <p>Tibia nerve</p> <p>D.</p> <p>Lateral plantar nerve</p> <p>E.</p> <p>Medial plantar nerve</p>
28.	<p>A 68-year-old woman is unable to extend the interphalangeal joint of her right thumb six weeks following a fracture of the right radius. The other fingers and thumb movements are unaffected. What is the SINGLE most likely tendon to be damaged?</p> <p>A.</p> <p>Abductor pollicis longus</p> <p>B.</p> <p>Extensor pollicis brevis</p> <p>C.</p> <p>Extensor pollicis longus</p> <p>D.</p> <p>Flexor digitorum profundus</p> <p>E.</p> <p>Flexor pollicis longus</p>
29.	<p>A 62-year-old male comes to the GP complaining of double vision when climbing down the stairs. Which is the SINGLE most likely nerve to be affected?</p> <p>A.</p> <p>Abducens nerve</p> <p>B.</p>



	<p>Trochlear nerve</p> <p>C.</p> <p>Oculomotor nerve</p> <p>D.</p> <p>Optic nerve</p> <p>E.</p> <p>Trigeminal nerve</p>
30.	<p>A 35-year-old man is due for a surgery to attempt to removal of a glioma. What is the SINGLE most likely anatomical structure to be opened during the surgery?</p> <p>A.</p> <p>Cricoid cartilage</p> <p>B.</p> <p>Rectus sheath muscle</p> <p>C.</p> <p>Dura Mater</p> <p>D.</p> <p>Conjoined tendon</p> <p>E.</p> <p>Intercostal muscles</p>
31.	<p>What anatomical structure or landmark lies just above the midpoint of the inguinal ligament?</p> <p>A.</p> <p>Femoral artery pulse felt</p> <p>B.</p> <p>Femoral artery pulse felt</p> <p>C.</p> <p>Stellate ganglion</p> <p>D.</p> <p>Deep inguinal ring</p> <p>E.</p> <p>Transpyloric plane</p>
32.	<p>A 33-year-old man presents with outward gaze and ptosis of his right eye. He also complains of seeing double. Which is the SINGLE most likely nerve to be affected?</p> <p>A.</p> <p>Left trochlear</p> <p>B.</p> <p>Left oculomotor</p> <p>C.</p> <p>Right trochlear</p> <p>D.</p> <p>Right abducens</p> <p>E.</p>



	Right oculomotor
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SAMPLE



CARDIOLOGY

SAMPLE



1)	<p>A 50-year-old female presents with shortness of breath and palpitations which has been on-going for the past few hours. She has ankle swelling which has been present for more than a year and feels difficulty in breathing while lying down. She is a known alcoholic. A chest radiograph shows evidence of cardiac enlargement. What is the SINGLE most likely cause of her worsening condition?</p> <p>A. Ventricular tachycardia B. Paroxysmal supraventricular tachycardia C. Ventricular fibrillation D. Atrial fibrillation E. Ventricular ectopic</p>
2)	<p>A 55-year-old man who suffered a myocardial infarction a few days ago is now ready for discharge. His medical history remains insignificant other than the myocardial infarction he had. He has no drug allergies. He has already been put on aspirin and clopidogrel. What is the SINGLE most appropriate medication(s) to be given to him on discharge?</p> <p>A. Statin only B. Statin and Warfarin C. Statin and ACE inhibitor D. Warfarin only E. Heparin only</p>
3)	<p>A 43-year-old lady is admitted with pyrexia, breathlessness and history of syncope. She was recently diagnosis with a pulmonary embolus. There is an early diastolic sound and a mid-diastolic rumble. Her jugular venous pressure is elevated with prominent a-waves. What is the SINGLE most likely diagnosis?</p> <p>A. Mitral regurgitation B. Ventricular ectopics C. Pulmonary regurgitation D. Atrial myxoma E. Complete heart block</p>

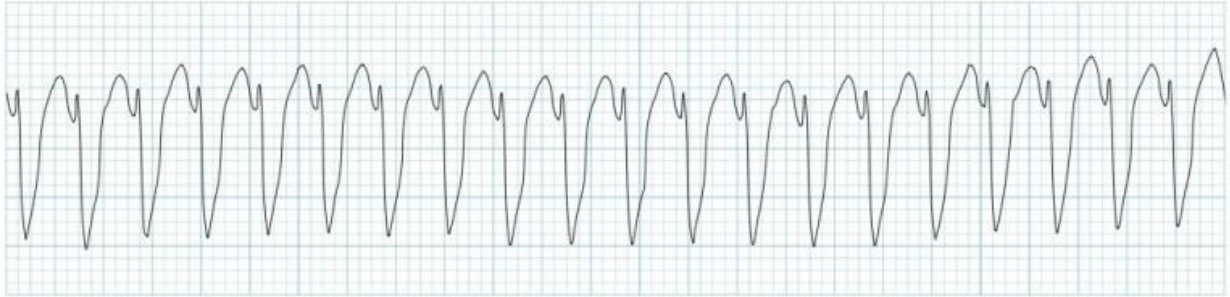


4)	<p>A 48-year-old man has continuous anterior chest pain which is worse on inspiration. 4 weeks ago, he had a myocardial infarction. He has a temperature of 37.5°C. His blood results show an ESR of 82 mm/h. What is the SINGLE most likely explanation for the abnormal investigation?</p> <p>A. Pulmonary embolism</p> <p>B. Cardiac tamponade</p> <p>C. Atrial thrombus</p> <p>D. Left ventricular aneurysm</p> <p>E. Dressler syndrome</p>
5)	<p>A 55-year-old man had a myocardial infarction 3 days ago. He now complains of a shortness of breath and a sharp pain in the chest. The pain increases when he breathes and is relieved when sitting forward. His respiratory rate is 22 breath's/minute and his heart rate is 95 beats/minute. What is the SINGLE most likely diagnosis?</p> <p>A. Myocardial infarction</p> <p>B. Pericarditis</p> <p>C. Aortic dissection</p> <p>D. Pulmonary embolism</p> <p>E. Cardiac tamponade</p>
6)	<p>A 28-year-old man complains of heart racing. He is completely conscious throughout. He has a pulse of 132 beats/minute, a blood pressure of 120/80 mmHg and a respiratory rate of 20 breaths/minute. An ECG was taken which shows supraventricular tachycardia. What is the SINGLE most appropriate initial management?</p> <p>A. Amiodarone</p> <p>B. Adenosine</p> <p>C. Radio-frequency ablation</p> <p>D. Carotid massage</p> <p>E. Metoprolol</p>



7)	<p>A 44-year-old man who presently has acute renal failure has an ECG that shows tall tented T waves, flat P waves and a wide QRS complex. What is the SINGLE most likely electrolyte abnormality?</p> <p>A. Hypophosphataemia</p> <p>B. Hyperkalaemia</p> <p>C. Hypokalaemia</p> <p>D. Hypercalcaemia</p> <p>E. Hypocalcaemia</p>
8)	<p>A 69-year-old man was successfully thrombolysed for an inferior myocardial infarction 15 days ago and was discharged 5 days after the thrombolysis. He is now re-admitted as he is hypotensive, tachycardic and with pulmonary oedema. What is the most SINGLE most likely diagnosis?</p> <p>A. Aortic regurgitation</p> <p>B. Acute mitral regurgitation</p> <p>C. Mitral valve prolapse</p> <p>D. Pulmonary stenosis</p> <p>E. Rheumatic mitral valve stenosis</p>
9)	<p>A 6-week-old baby has a pansystolic murmur at sternal border. He feeds poorly and has poor weight gain. The baby is acyanotic. What is the SINGLE most likely diagnosis?</p> <p>A. Tetralogy of Fallot</p> <p>B. Atrial septal defect</p> <p>C. Ventricular septal defect</p> <p>D. Patent ductus arteriosus</p> <p>E. Transposition of the great arteries</p>
10)	<p>A 55-year-old man with a history of a myocardial infarction has progressive dyspnoea. He has had previous admissions with heart failure in the past year. He has a respiratory rate of 31 breaths/minute and a systolic blood pressure of 90 mmHg. His oxygen saturation is 90% on room air. On examination, he</p>



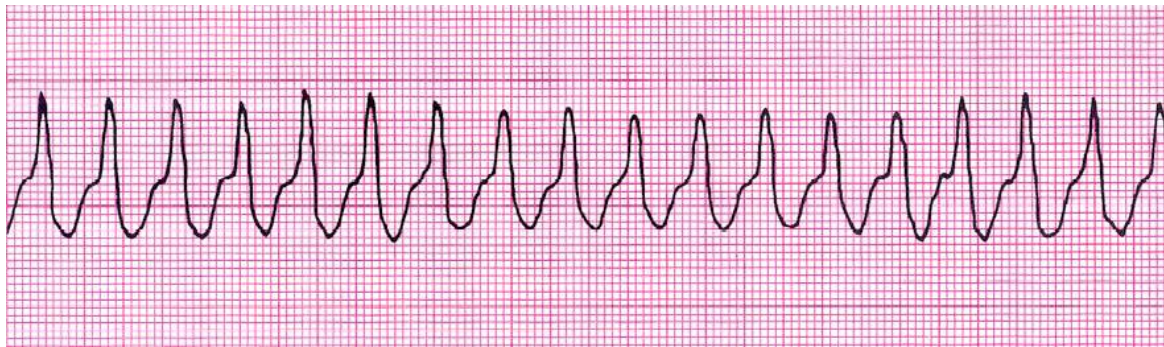
	<p>looks pale and sweaty, and has widespread crepitations over both lung fields. Oxygen by face mask was commenced. What is the SINGLE most appropriate investigation?</p> <p>A. Chest X-ray</p> <p>B. Computed tomography scan of the chest</p> <p>C. Electrocardiogram</p> <p>D. Full blood count</p> <p>E. D-dimer test</p>
11)	<p>A 65-year-old man presents with recurrent light-headedness for one month especially when he gets up from bed in the morning. He also has occasional episodes of light-headedness when standing for prolonged periods of time. He suffers from hypertension and type 2 diabetes. His regular medications include atenolol, amlodipine, bendroflumethiazide and metformin. On physical examination, his blood pressure was 125/85 mmHg taken when he was supine and 101/69 mmHg when standing. What is the SINGLE most likely diagnosis?</p> <p>A. Acute hypotension</p> <p>B. Vasovagal faints</p> <p>C. Postural hypotension</p> <p>D. Postprandial hypotension</p> <p>E. Aortic stenosis</p>
12)	<p>A 74-year-old man started having chest pain. He has a blood pressure of 70/50 mmHg. He is conscious and a radial pulse is felt. An ECG shows the following rhythm. What is the SINGLE most likely diagnosis?</p>  <p>A. Supraventricular tachycardia</p>



	<p>B. Ventricular tachycardia</p> <p>C. Ventricular fibrillation</p> <p>D. Atrial fibrillation</p> <p>E. Atrial flutter</p>
13)	<p>A 75-year-old man is found to be unresponsive. The ward doctor is called to the patient's bedside. He is not breathing and has no detectable pulse. Which is the SINGLE most appropriate next step?</p> <p>A. Get a defibrillator</p> <p>B. Give two rescue breaths immediately</p> <p>C. Check notes for a Do Not Attempt Resuscitation (DNAR) order</p> <p>D. Insert two wide-bore cannulas into each antecubital fossa</p> <p>E. Start chest compressions at a rate of 30:2</p>
14)	<p>A 43-year-old man was brought into the A&E after being stabbed in the chest with a knife. His chest is bilaterally clear. He has muffled heart sounds and his neck veins look distended. His systolic blood pressure is 60 mmHg and pulse is 120 bpm. What is the SINGLE most likely diagnosis?</p> <p>A. Pulmonary embolism</p> <p>B. Pericardial effusion</p> <p>C. Cardiac tamponade</p> <p>D. Hemothorax</p> <p>E. Pneumothorax</p>
15)	<p>A 60-year-old lady has severe chest pain. ECG shows changes of inferior wall myocardial infarction. The ECG also shows progressive prolongation of PR interval until a QRS complex is dropped. What is the SINGLE most likely diagnosis?</p> <p>A. Atrial fibrillation</p> <p>B. Ventricular tachycardia</p> <p>C.</p>



	<p>Supraventricular tachycardia</p> <p>D.</p> <p>Mobitz type I AV block</p> <p>E.</p> <p>Mobitz type II AV block</p>
16)	<p>A 62-year-old women who had stroke a year ago now reports having increased dyspnoea on exertion. An ECG was performed which showed an atrial fibrillation. Chest X-ray shows a straight left heart border. What is the SINGLE most likely diagnosis?</p> <p>A.</p> <p>Aortic regurgitation</p> <p>B.</p> <p>Acute mitral regurgitation</p> <p>C.</p> <p>Mitral valve prolapse</p> <p>D.</p> <p>Pulmonary stenosis</p> <p>E.</p> <p>Mitral valve stenosis</p>
17)	<p>A preterm neonate has a continuous murmur that disappeared at the time of discharge from the paediatric intensive care unit. What is the SINGLE most likely diagnosis?</p> <p>A.</p> <p>Patent ductus arteriosus</p> <p>B.</p> <p>Tetralogy of fallot</p> <p>C.</p> <p>Transposition of great arteries</p> <p>D.</p> <p>Atrial septal defect</p> <p>E.</p> <p>Ventricular septal defect</p>
18)	<p>A 74-year-old man started having chest pain. He has a blood pressure of 70/50 mmHg. His level of consciousness is decreased. A radial pulse is felt. An ECG shows the following rhythm. What is the SINGLE most appropriate management?</p>



- A. Cardioversion
- B. Carotid sinus massage
- C. Adenosine
- D. Amiodarone
- E. Lidocaine

19) A 44-year-old woman in the postnatal ward develops sudden onset chest pain and shortness of breath. She had an emergency C-section for fetal distress two days ago. She feels the breathlessness worsen when she lies down. She has a respiratory rate of 32 breaths/minute and a blood pressure of 100/60 mmHg. Her oxygen saturation is 89% on room air and temperature is 36.9°C. On examination, she looks pale and sweaty. Auscultation reveals widespread crepitations over both lung fields. An ECG was performed which shows sinus tachycardia. Oxygen by face mask was commenced. A chest X-ray confirms the diagnosis. Which SINGLE medication is used as part of the management?

- A. Co-amoxiclav
- B. Aspirin
- C. Furosemide
- D. Low molecular weight heparin
- E. Alteplase

20) A 60-year-old woman with a history of ischaemic heart disease presents to A&E with progressive dyspnoea. She has had previous admissions with heart failure in the past year. She has a respiratory rate of 34 breaths/minute and a systolic blood pressure of 90 mmHg. Her oxygen saturation is 88% on room air. On examination, she looks pale and sweaty, and has widespread crepitations over both lung fields. Oxygen by face mask was commenced. What is the SINGLE most appropriate next step in management?



	<p>A. Bendroflumethiazide</p> <p>B. Furosemide</p> <p>C. Aspirin</p> <p>D. Carvedilol</p> <p>E. Spironolactone</p>
21)	<p>A 28-year-old man complains of heart racing. He is completely conscious throughout. He has a pulse of 132 beats/minute, a blood pressure of 120/70 mmHg and a respiratory rate of 21 breaths/minute. An ECG was taken which shows supraventricular tachycardia. What is the SINGLE most appropriate immediate management?</p> <p>A. Amiodarone</p> <p>B. Adenosine</p> <p>C. Lidocaine</p> <p>D. Verapamil</p> <p>E. Metoprolol</p>
22)	<p>A 68-year-old man is found collapsed at a shopping mall. An ECG reveals no connection between P waves and QRS complexes with a rate of 35 beats/minute. What is the SINGLE most likely diagnosis?</p> <p>A. Third degree heart block</p> <p>B. Ventricular tachycardia</p> <p>C. First degree heart block</p> <p>D. Mobitz type I AV block</p> <p>E. Mobitz type II AV block</p>
23)	<p>A 46 year old man was brought into the A&E after being stabbed in the chest with a knife. His chest is bilaterally clear. He has muffled heart sounds and his neck veins look distended. His blood pressure is 84/40 mmHg and pulse is 110 bpm. What is the SINGLE most appropriate investigation that can lead to a diagnosis?</p> <p>A.</p>



	<p>Echocardiogram</p> <p>B.</p> <p>Chest X-ray</p> <p>C.</p> <p>CTPA</p> <p>D.</p> <p>Spirometry</p> <p>E.</p> <p>Blood cultures</p>
24)	<p>A 72-year-old woman had sudden chest pain and shortness of breath 1 hour ago. There is ST elevation in the II, III and aVF on ECG. Oxygen has been started. She was given GTN and diamorphine which has improved her chest pain. Her heart rate is 90 bpm and respiratory rate is 18/min. What is the SINGLE most appropriate next step in management?</p> <p>A.</p> <p>Low molecular weight heparin</p> <p>B.</p> <p>Percutaneous intervention (PCI)</p> <p>C.</p> <p>Warfarin</p> <p>D.</p> <p>Streptokinase</p> <p>E.</p> <p>Alteplase</p>
25)	<p>A 52-year-old man underwent a hemicolectomy. A few days after his operation he develops chest pain and a temperature of 38.8°C. He is having rigors and night sweats. On auscultation, a systolic murmur is heard. What is the next SINGLE most appropriate investigation?</p> <p>A.</p> <p>Computed tomography scan of the chest</p> <p>B.</p> <p>Abdominal ultrasound</p> <p>C.</p> <p>Chest X-ray</p> <p>D.</p> <p>Blood culture</p> <p>E.</p> <p>Liver function test</p>
26)	<p>A 33-year-old man complaints of occasional left sided chest pain that lasts less than 30 minutes following exercise. The pain is relieved once he takes a rest. What is the SINGLE most likely diagnosis?</p> <p>A.</p> <p>Unstable angina</p> <p>B.</p>



	<p>Decubitus angina</p> <p>C.</p> <p>Stable angina</p> <p>D.</p> <p>Coronary spasm</p> <p>E.</p> <p>Myocardial infarction</p>
27)	<p>A 71-year-old woman had sudden chest pain and shortness of breath 2 hours ago. The pain radiates to her left arm. There is ST elevation in the II, III and aVF on ECG. Oxygen has been started and she was given GTN which has improved her chest pain. Her heart rate is 80 bpm and respiratory rate is 18/min. What is the SINGLE most appropriate next step in management?</p> <p>A.</p> <p>Low molecular weight heparin</p> <p>B.</p> <p>Alteplase</p> <p>C.</p> <p>Warfarin</p> <p>D.</p> <p>Proton pump inhibitors</p> <p>E.</p> <p>Continue current management</p>
28)	<p>A 2-week-old baby has oxygen saturation of 70% on air. He is cyanosed and has an ejection systolic murmur. What is the SINGLE most likely diagnosis?</p> <p>A.</p> <p>Tetralogy of Fallot</p> <p>B.</p> <p>Atrial septal defect</p> <p>C.</p> <p>Patent ductus arteriosus</p> <p>D.</p> <p>Transposition of great arteries</p> <p>E.</p> <p>Ventricular septal defect</p>
29)	<p>A 58-year-old man suddenly becomes shocked several days after suffering an acute myocardial infarction. His chest X-ray shows a large globular shaped heart and clear lung fields. His neck veins look distended. What is the SINGLE most likely diagnosis?</p> <p>A.</p> <p>Acute pericarditis</p> <p>B.</p> <p>Atrial thrombus</p> <p>C.</p>



	<p>Cardiac tamponade</p> <p>D.</p> <p>Heart block</p> <p>E.</p> <p>Left ventricular aneurysm</p>
30)	<p>A 60-year-old man had a myocardial infarction 2 weeks ago. He now presents with dyspnoea and chest pain. A pericardial friction rub was noticed on examination. ECG shows widespread ST elevation. A Chest X-ray shows an enlarged, globular heart. His pulse rate is 95 bpm and his respiratory rate is 24/min. What is the SINGLE most likely cause of his symptoms?</p> <p>A.</p> <p>Cardiac tamponade</p> <p>B.</p> <p>Mitral regurgitation</p> <p>C.</p> <p>Dressler's syndrome</p> <p>D.</p> <p>Atrial fibrillation</p> <p>E.</p> <p>Pulmonary Embolism</p>
31)	<p>A 58-year-old man with a history of type 1 diabetes mellitus and hypertension for 13 years develops sudden central chest pain for 45 minutes. The pain started while he was driving and it was associated with cold sweating and dyspnoea. He describes the pain as a burning pain. What is the SINGLE most likely diagnosis?</p> <p>A.</p> <p>Myocardial Infarction</p> <p>B.</p> <p>Pericarditis</p> <p>C.</p> <p>Pulmonary embolism</p> <p>D.</p> <p>Costochondritis</p> <p>E.</p> <p>Pneumothorax</p>
32)	<p>A 54-year-old man has a temperature of 39°C, a new murmur and cardiac failure. He had a dental extraction several of days ago. What is the SINGLE most likely reason for his symptoms?</p> <p>A.</p> <p>Atheroma</p> <p>B.</p> <p>Congenital</p> <p>C.</p> <p>Regeneration of tissue</p>



	D. Infection E. Neoplasm
33)	<p>A 50-year-old man with diabetes mellitus suddenly develops persistent crushing central chest pain radiating to the neck and arm when he was driving. He has a pulse of 122 beats/minute, a blood pressure of 110/70 mmHg and a respiratory rate of 34 breaths/minute. What is the SINGLE most likely diagnosis?</p> <p>A. Angina B. Costochondritis C. Dissecting aneurysm D. Myocardial Infarction E. Pulmonary embolism</p>
34)	<p>A 46-year-old African-Caribbean man is found to have blood pressure of 160/90 mmHg on 3 separate occasions. What is the SINGLE most appropriate initial treatment?</p> <p>A. ACE inhibitors B. Beta-blockers C. Angiotensin II receptor blockers D. Thiazide diuretics E. Calcium channel blockers</p>
35)	<p>A 66-year-old man with a history of hypertension presents to A&E with sudden, severe lower abdominal pain and back pain. A tender pulsatile abdominal mass is palpated lateral and superior to the umbilicus. His heart rate is 110/min and blood pressure is 80/50 mmHg. What is the SINGLE most appropriate investigation?</p> <p>Plab Lab Values</p> <p>A. Laparoscopy B. X-ray KUB C.</p>




	Ultrasound pelvis D. Sigmoidoscopy E. Ultrasound abdomen
36)	<p>A 69-year-old woman had sudden chest pain and shortness of breath 2 hours ago. ECG shows ST elevation in leads I, II, III. Oxygen has been started and she was given GTN which has improved her chest pain. Her heart rate is 70 bpm and respiratory rate is 18/min. What is the SINGLE most appropriate next step in management?</p> <p>A. Low molecular weight heparin B. Streptokinase C. Warfarin D. Proton pump inhibitors E. Continue current management</p>
37)	<p>A 57-year-old woman who is suffering from hypertension, presents to the hospital with complaints of recurrent falls when trying to get out of bed or getting up from sitting. She is on antihypertensive therapy with no other medical problems. What is the SINGLE most likely cause of her falls?</p> <p>A. Calcium channel blockers B. Vertebrobasilar insufficiency C. Thiazide D. Hypoglycemia E. Pneumonia</p>
38)	<p>A 55-year-old woman was found collapsed at home. The paramedics revived her but in the ambulance she had a cardiac arrest and could not be saved. The paramedic's report states that the woman was immobile lately due to hip pain and that they found ulcers on the medial side of ankle. She has a history of diabetes mellitus and was on anti-diabetics. What is the likely cause of her death?</p> <p>A. Acute Myocardial infarction B. Diabetic ketoacidosis C. Pulmonary embolism</p>



	<p>D. Acute pericarditis</p> <p>E. Cardiac tamponade</p>
39)	<p>A 58-year-old women with a history of type 1 diabetes mellitus suddenly develops chest and abdominal pain. The pain started when she was watching television. It was associated with nausea, vomiting, dyspnoea, and palpitations. She describes the pain as dull and burning. What is the SINGLE most likely diagnosis?</p> <p>A. Myocardial Infarction</p> <p>B. Pericarditis</p> <p>C. Pulmonary embolism</p> <p>D. Costochondritis</p> <p>E. Pneumothorax</p>
40)	<p>A 58-year-old woman presents to A&E with a fall. From her records, you noticed that she has a few attendances to A&E in the last few months resulting from recurrent falls. On examination, she looks slightly pale and she jokes that she is clumsier nowadays. Her medical history included asthma, hypertension and a previous myocardial infarction. She regularly takes Salbutamol inhaler, QVAR inhaler, Amlodipine, Aspirin, Atenolol, and Bendroflumethiazide. What is the SINGLE most appropriate investigation to be carried out?</p> <p>A. 24 hours ECG</p> <p>B. Blood pressure monitoring</p> <p>C. Peak flow meter</p> <p>D. Echo</p> <p>E. Computed tomography head</p>
41)	<p>A 72-year-old man is found to be unresponsive. The ward doctor is called to the patient's bedside. He is not breathing and has no detectable pulse. Which is the SINGLE most appropriate next step?</p> <p>A. Get a defibrillator</p> <p>B. Give two rescue breaths immediately</p> <p>C.</p>



	<p>Call resuscitation team</p> <p>D.</p> <p>Insert two wide-bore cannulas into each antecubital fossa</p> <p>E.</p> <p>Start chest compressions at a rate of 30:2</p>
42)	<p>A 55-year-old man was brought to the emergency department from a shopping mall after collapsing 2 hours ago. He is now fully conscious and answering questions. His ECG shows an irregular rhythm. His blood pressure is 120/80 mmHg. What is the SINGLE most appropriate investigation to carry out?</p> <p>A.</p> <p>CT</p> <p>B.</p> <p>MRI</p> <p>C.</p> <p>24 hours ECG</p> <p>D.</p> <p>Echocardiogram</p> <p>E.</p> <p>Exercise testing</p>
43)	<p>A 69-year-old man has the following ECG. What is the SINGLE most appropriate next step in</p>  <p>management?</p> <p>A.</p> <p>Metoprolol</p> <p>B.</p> <p>Digoxin</p> <p>C.</p> <p>Carotid sinus massage</p> <p>D.</p> <p>Adenosine</p> <p>E.</p> <p>Amiodarone</p>
44)	<p>A 66-year-old man has presented to the emergency department with a stroke. CT shows no haemorrhage. ECG shows atrial fibrillation. He has been thrombolysed and he is awaiting discharge. He has no other medical conditions. What is the SINGLE best prophylactic regimen for him?</p>



	<p>A. Warfarin</p> <p>B. Heparin</p> <p>C. Aspirin</p> <p>D. Statins</p> <p>E. Beta blockers</p>
45)	<p>A 65-year-old man has chest pain. On initial assessment, he is noted to be pale. An ECG reveals no connection between P waves and QRS complexes with a rate of 42 beats/minute. What is the SINGLE most likely diagnosis?</p> <p>A. Complete heart block</p> <p>B. Ventricular tachycardia</p> <p>C. First degree heart block</p> <p>D. Mobitz type I AV block</p> <p>E. Mobitz type II AV block</p>
46)	<p>A 6-week-old baby presents with the following features of progressive cyanosis, poor feeding, tachypnoea during the first two weeks of life. A holosystolic murmur is heard. What is the SINGLE most likely diagnosis?</p> <p>A. Atrial septal defect</p> <p>B. Ventricular septal defect</p> <p>C. Tricuspid atresia</p> <p>D. Patent ductus arteriosus</p> <p>E. Tetralogy of Fallot</p>
47)	<p>A 50-year-old smoker and heavy drinker presents with complaints of a racing heart. He has no chest pain. The palpitations usually occur when he drinks alcohol or when he exercises. He has no significant past medical history. A 24 hours ECG is shown to be normal. What is the SINGLE most appropriate action?</p>



	<p>A. Echocardiogram</p> <p>B. Reassure</p> <p>C. Exercise stress test</p> <p>D. 24 hour BP monitoring</p> <p>E. Fasting blood glucose</p>
48)	<p>A 65-year-old man continues to experience chest pain 2 days after an acute myocardial infarction. He has a temperature of 37.8°C. His ECG shows widespread ST elevation with upward concavity. What is the SINGLE most likely diagnosis?</p> <p>A. Acute pericarditis</p> <p>B. Cardiac tamponade</p> <p>C. Atrial thrombus</p> <p>D. Left ventricular aneurysm</p> <p>E. Dressler syndrome</p>
49)	<p>A 42-year-old man collapsed and died at home. The GP's report states that he has type 2 diabetes and has a BMI of 35. What is the SINGLE most likely cause of death?</p> <p>A. Myocardial Infarction</p> <p>B. Hyperglycaemia</p> <p>C. Heart Failure</p> <p>D. Pulmonary Embolism</p> <p>E. Renal failure</p>
50)	<p>A 76-year-old diabetic man was recently admitted after being found to be in atrial fibrillation. This was his second episode of atrial fibrillation. He has no other medical problems. What is the SINGLE most appropriate management?</p> <p>A. Aspirin</p> <p>B.</p>




	Warfarin C. Clopidogrel D. Heparin E. Statins
51)	<p>A 60-year-old man presents with a history of sudden chest pain which radiates to his jaw accompanied by shortness of breath which started 2 hours ago. An ECG was done which shows a normal sinus rhythm without ST elevation. What is the SINGLE most appropriate investigation?</p> <p>A. Cardiac troponins B. Chest X-ray C. Echocardiogram D. Holter ECG E. Exercise stress test</p>
52)	<p>A 47-year-old man with history of a myocardial infarction complains of chest pain with shortness of breath on exertion over the past few days. ECG was shown to be normal. Echocardiogram shows decreased ejection fraction and decreased septal wall thickness. What is the SINGLE most likely diagnosis?</p> <p>A. Dilated cardiomyopathy B. Constrictive pericarditis C. Amyloidosis D. Subacute endocarditis E. Pericarditis</p>
53)	<p>An 18-year-old man complains of fatigue and dyspnoea. On examination, he has a left parasternal heave and systolic thrill with a harsh pan-systolic murmur at left parasternal edge. What is the SINGLE most likely diagnosis?</p> <p>A. Tetralogy of Fallot B. Atrial septal defect</p>



	<p>C. Ventricular septal defect</p> <p>D. Patent ductus arteriosus</p> <p>E. Transposition of the great arteries</p>
54)	<p>A 42-year-old lady had corrective surgery for cyanotic congenital heart disease at the age of 3 after having a palliative operation during infancy. On examination, a parasternal heave and a diastolic murmur at the left upper sternal angle is noted. What is the SINGLE most likely diagnosis?</p> <p>A. Aortic regurgitation</p> <p>B. Mitral regurgitation</p> <p>C. Aortic stenosis</p> <p>D. Pulmonary stenosis</p> <p>E. Pulmonary regurgitation</p>
55)	<p>A 45-year-old man has shortness of breath and palpitations. He has a pulse of 142 beats/minute, a blood pressure of 110/80 mmHg and a respiratory rate of 20 breaths/minute. Carotid sinus massage was attempted but he is still tachycardic. What is the SINGLE most appropriate next management?</p> <p>A. Adenosine</p> <p>B. Amlodipine</p> <p>C. DC cardioversion</p> <p>D. Lidocaine</p> <p>E. Beta blocker</p>
56)	<p>A 69-year-old hypertensive white British man is currently on Indapamide 2.5mg daily but his blood pressure is still high. Which of the following is the SINGLE best choice to add in order to control his blood pressure?</p> <p>A. Increase dose of diuretic to 5mg daily</p> <p>B. Enalapril (ACE inhibitor)</p> <p>C. Atenolol (Beta blocker)</p>



	<p>D. Amlodipine (Calcium channel blocker)</p> <p>E. Prazosin (Alpha blocker)</p>
57)	<p>A 56-year-old man presents to the emergency department with chest pain. The following ECG was taken.</p>  <p>What is the SINGLE most likely diagnosis?</p> <p>A. Anteroseptal myocardial infarction</p> <p>B. Inferior myocardial infarction</p> <p>C. Lateral myocardial infarction</p> <p>D. Posterior myocardial infarction</p> <p>E. Non-ST-elevation myocardial infarction</p>
58)	<p>A 45-year-old lady who was previously fit and well is admitted with breathlessness, palpitations and a history of syncope. Her symptoms change with position. On examination, a loud S1 is noted at the apex. What is the SINGLE most likely diagnosis?</p> <p>A. Mitral regurgitation</p> <p>B. Ventricular ectopics</p> <p>C. Pulmonary regurgitation</p>



	<p>D. Atrial myxoma</p> <p>E. Complete heart block</p>
59)	<p>Which is the SINGLE most likely artery that has artery dominance in 85% of the general population?</p> <p>A. Left anterior descending artery</p> <p>B. Coronary sinus</p> <p>C. Circumflex artery</p> <p>D. Posterior descending artery</p> <p>E. Right coronary artery</p>
60)	<p>A 59 years old man returns for routine follow up 6 weeks following a myocardial infarction. He complains of breathlessness when walking uphill. His ECG shows ST elevation in leads V1, V2, V3, V4 and V5. What is the SINGLE most likely explanation for the abnormal findings?</p> <p>A. Heart block</p> <p>B. Right ventricular strain</p> <p>C. Atrial thrombus</p> <p>D. Left ventricular aneurysm</p> <p>E. Dressler's syndrome</p>
61)	<p>A 52-year-old man with history of anterior myocardial infarction 3 weeks ago developed a sudden onset of dyspnoea. He has a blood pressure of 100/60 mmHg, pulse rate of 100 beats/minute, SaO₂ = 88%, and his chest is audible for bilateral crackles. What is the SINGLE best investigation to determine the underlying cause?</p> <p>A. Chest X-ray</p> <p>B. Echocardiogram</p> <p>C. D-dimer</p> <p>D. Ventilation/perfusion scan</p> <p>E.</p>

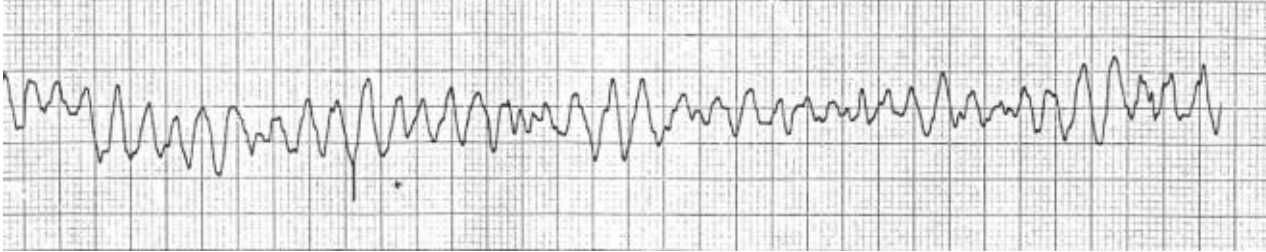


	Troponin
62)	<p>A 59-year-old man who is on multiple medications for ischaemic heart disease, hypertension and diabetes finds it difficult to mobilize as he feels dizzy when trying to stand up. What is the SINGLE most appropriate investigation for him?</p> <p>A. Blood pressure monitoring</p> <p>B. ECG</p> <p>C. Magnetic resonance imaging</p> <p>D. Chest X-ray</p> <p>E. Computed tomography scan</p>
63)	<p>A 57-year-old man presents to A&E with central abdominal and lower back pain associated with feeling faint and sweaty. The pain started very suddenly and it is very severe. His heart rate is 105 bpm and blood pressure is 88/50 mmHg. On physical examination, there is a tender pulsatile abdominal mass and his left femoral pulse is absent. What is the SINGLE most appropriate initial investigation?</p> <p>A. Ultrasound</p> <p>B. Sigmoidoscopy</p> <p>C. Barium enema</p> <p>D. X-ray of the abdomen</p> <p>E. Magnetic resonance imaging of the abdomen</p>
64)	<p>A 62-year-old woman with longstanding anxiety is seen in the outpatient department. She complains of her heart skipping a beat quite often. This particularly occurs when she is trying to get to sleep. The palpitations are never sustained. What is the SINGLE most likely rhythm disturbance?</p> <p>A. Supraventricular tachycardia</p> <p>B. Ventricular fibrillation</p> <p>C. Ventricular tachycardia</p> <p>D. Atrial fibrillation</p> <p>E.</p>



	Ventricular ectopic
65)	<p>A 65-year-old man presents with fatigue and dyspnoea 3 days after having a myocardial infarction. On auscultation, he has a pansystolic murmur at the apex radiating to the axilla. What is the SINGLE most likely diagnosis?</p> <p>A. Papillary muscle rupture</p> <p>B. Ventricular aneurysm</p> <p>C. Pericarditis</p> <p>D. Pericardial effusion</p> <p>E. Ventricular septal defect</p>
66)	<p>A 60-year-old man with a history of ischaemic heart disease starts having chest pain. He has a heart rate of 170 beats/minute and a blood pressure of 70/45 mmHg. An ECG reveals a broad complex tachycardia with absence of atrial activity. He feels unwell and is now semi-conscious. What is the SINGLE most likely diagnosis?</p> <p>A. Stokes-Adams syndrome</p> <p>B. Ventricular fibrillation</p> <p>C. Ventricular tachycardia</p> <p>D. Complete heart block</p> <p>E. Atrial fibrillation</p>
67)	<p>A 28-year-old man presents with a 2 hours history of rapid palpitations. He feels light headed but is otherwise well. On examination, he has a pulse of 170 beats/minute, regular. His blood pressure is 100/68 mmHg. He had 2 similar episodes of feeling palpitations in the past 3 months. What is the SINGLE most likely rhythm disturbance?</p> <p>A. Supraventricular tachycardia</p> <p>B. Ventricular fibrillation</p> <p>C. Ventricular tachycardia</p> <p>D. Ectopic beats</p> <p>E.</p>

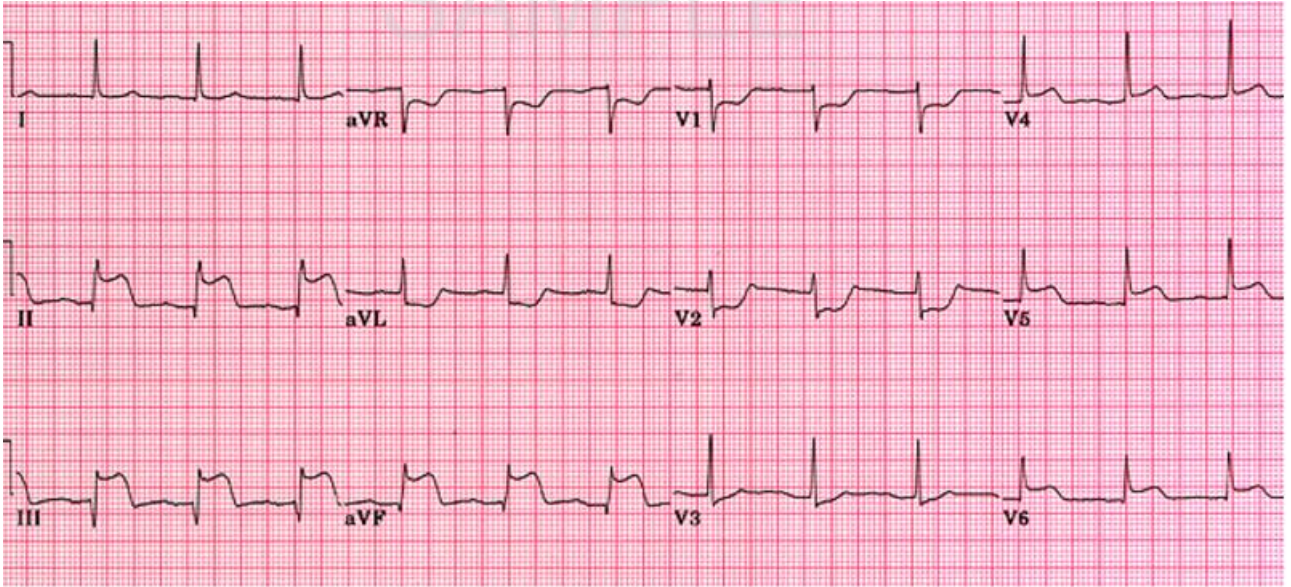


	Atrial fibrillation
68)	<p>A 72-year-old man is found not breathing in the CCU with the following rhythm. His pulse can not be felt. What is the SINGLE most likely diagnosis?</p>  <p>A. Supraventricular tachycardia B. Ventricular tachycardia C. Ventricular fibrillation D. Atrial fibrillation E. Atrial flutter</p>
69)	<p>52-year-old man presents with increased breathlessness at rest. He is currently taking furosemide which he finds gives him some relief. His medical history is significant for diabetes mellitus. On examination, bilateral pedal oedema and bibasal crepitation's are noted. What is the SINGLE most appropriate next step in management?</p> <p>A. Ramipril B. Bendroflumethiazide C. Atenolol D. Amlodipine E. Carvedilol</p>
70)	<p>A 79-year-old man with a past history of ischemic heart disease presents with yellow haloes, nausea and vomiting. His ECG reveals an arrhythmia. Which of the following medication is most likely responsible for his symptoms?</p> <p>A. Digoxin B.</p>



	<p>Amlodipine</p> <p>C.</p> <p>Aminophylline</p> <p>D.</p> <p>Propranolol</p> <p>E.</p> <p>Diltiazem</p>
71)	<p>A 50-year-old man presents with a stab wound to his left anterior chest at the level of the 4th intercostal space. On physical examination, his neck veins are dilated, heart sounds are faint and trachea is central. He has a systolic blood pressure of 80 mmHg and a pulse rate of 130 bpm. What is the SINGLE most likely diagnosis?</p> <p>A.</p> <p>Cardiac tamponade</p> <p>B.</p> <p>Diaphragmatic rupture</p> <p>C.</p> <p>Fractured ribs</p> <p>D.</p> <p>Tension pneumothorax</p> <p>E.</p> <p>Traumatic rupture of aorta</p>
72)	<p>A 40-year-old man was brought into the A&E after being hit by a vehicle. He sustained trauma to the chest. His neck veins look distended and his heart sounds are faint. He has a blood pressure of 80/45 mmHg and pulse is 120 bpm. His trachea is central. What is the SINGLE most appropriate management?</p> <p>A.</p> <p>Chest drain</p> <p>B.</p> <p>IV fluids</p> <p>C.</p> <p>Pericardiocentesis</p> <p>D.</p> <p>Large-bore cannula into second intercostal space in midclavicular line</p> <p>E.</p> <p>Blood transfusion</p>
73)	<p>A 55-year-old man has central chest pain that radiates to his shoulders and arm. It is relieved by sitting up and leaning forward. Pericardial friction rub is heard. A widespread 'saddle-shaped' ST elevation is seen on an ECG. The cardiac shadow is not enlarged on a chest X-ray. What is the SINGLE most likely diagnosis?</p> <p>A.</p> <p>Acute pericarditis</p> <p>B.</p>



	<p>Cardiac tamponade</p> <p>C.</p> <p>Pericardial Effusion</p> <p>D.</p> <p>Myocardial infarction</p> <p>E.</p> <p>Pleural effusion</p>
74)	<p>A 45-year-old carpenter presents with a 2 hour history of chest pain radiating to his left arm. His ECG is normal. What is the SINGLE most appropriate investigation?</p> <p>A.</p> <p>Cardiac enzymes</p> <p>B.</p> <p>Chest X-ray</p> <p>C.</p> <p>Chest CT</p> <p>D.</p> <p>Holter ECG</p> <p>E.</p> <p>V/Q scan</p>
75)	<p>A 72-year-old woman presents to the emergency department with chest pain. The following ECG was taken.</p>  <p>What is the SINGLE most likely diagnosis?</p> <p>A.</p> <p>Anteroseptal myocardial infarction</p> <p>B.</p>



	<p>Inferior myocardial infarction</p> <p>C.</p> <p>Lateral myocardial infarction</p> <p>D.</p> <p>Posterior myocardial infarction</p> <p>E.</p> <p>Non-ST-elevation myocardial infarction</p>
76)	<p>A 38-year-old man presents to the emergency department feeling unwell and dizzy. He has a heart rate of around 35 beats/minute. What is the SINGLE most appropriate first line treatment?</p> <p>A.</p> <p>Atropine</p> <p>B.</p> <p>Adenosine</p> <p>C.</p> <p>Dopamine</p> <p>D.</p> <p>Epinephrine</p> <p>E.</p> <p>Supplemental oxygen</p>
77)	<p>A 63-year-old man presents with sudden severe chest pain that radiates through to his back. He is sweaty and nauseated. On examination, his BP is 176/96 in his right arm and 143/78 in his left arm. On auscultation, you can hear an early diastolic murmur.</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A.</p> <p>Aortic valve perforation</p> <p>B.</p> <p>Thoracic outlet syndrome</p> <p>C.</p> <p>Aortic aneurysm</p> <p>D.</p> <p>Myocardial infarction</p> <p>E.</p> <p>Aortic dissection</p>



DERMATOLOGY

SAMPLE



1.	<p>A 35 year old woman has a butterfly rash on her face and suffers from symmetrical joint pains in the knee and elbow, Recent laboratory results show an elevated ESR and normal CRP. What is the SINGLE most discriminative investigations?</p> <p>A. Anti-dsDNA B. Anti-histone C. Antinuclear antibodies D. Anti-Jo-1 E. Anti-Scl-70</p>
2.	<p>A 19 year old girl has developed an itchy well-demarcated bright red elevated lesions over the extensor surface of her body. She also complains of a dry itchy scalp. Her mother suffers from a similar rash that often comes and goes. What is the SINGLE most likely diagnosis?</p> <p>A. Eczema B. Seborrheic dermatitis C. Impetigo D. Lichen planus E. Psoriasis</p>
3.	<p>A 29 year old man has developed a red, raised rash on his trunk after playing football. The rash is becoming increasingly itchy over the past few hours and has now spread to his arms. His past medical history includes asthma which was diagnosed when he was 7 years old. What is the SINGLE most appropriate management?</p> <p>A. Oral chlorpheniramine B. Oral amoxicillin C. IM adrenaline D. Nebulized salbutamol E. No treatment necessary</p>
4.	<p>A 19 year old boy complains of severe itching at the site of an insect bite which he noticed earlier today while camping. What is the SINGLE most appropriate management?</p> <p>A. Oral antihistamine B. Doxycycline C. IM adrenaline D. Oral ciprofloxacin E. Reassurance</p>
5.	<p>A 34 year old woman has fatigue, oral ulcers and a facial rash that is worse in the summer. She complains of having joint pains and stiffness especially in the morning. Urea and creatinine are slightly elevated with urinalysis demonstrating red cell casts. What is the SINGLE most appropriate investigations?</p> <p>A. Ultrasound of the Kidneys, Ureters & Bladder</p>



	<p>B. Joint aspiration C. Autoantibodies D. Intravenous urogram E. Schirmer test</p>
6.	<p>A 33 year old woman who recently came from India has a nodular patch on both her shins which is reddish brown. The nodules are slightly raised above the surrounding skin. She also has a fever and feels unwell. What is the SINGLE most probable diagnosis?</p> <p>A. Lupus vulgaris B. Erythema nodosum C. Pyoderma gangrenosum D. Erythema marginatum E. Solar keratosis</p>
7.	<p>An 8 year old child presented to her GP with eczema. She was given emollient and topical steroids by the GP. What SINGLE most appropriate advice should be given to her regarding application of the ointments and cream?</p> <p>A. Use steroids only when itchy B. Apply emollient first, then steroids 30 minutes later C. Apply steroids first, then emollient 30 minutes late D. Mix emollient & steroid before use E. Apply emollient at night together with steroids</p>
8.	<p>A 22 year old woman complains of recent onset of severe itching and weals which followed a viral infection. On inspection, numerous weals of all sizes are noticed on his skin. The weals tend to come and go within hours. What is the SINGLE most likely diagnosis?</p> <p>A. Primary sclerosing cholangitis B. Urticaria C. Psychogenic itching D. Atopic eczema E. Primary biliary cirrhosis</p>
9.	<p>A 24 year old woman complains of recent onset of severe itching and weals which followed a viral infection. She is unable to sleep at night due to the itch. On inspection, numerous weals of all sizes are noticed on his skin. The weals tend to come and go within hours. Eyelids, lips and tongue appear normal with no swelling. What is the SINGLE most appropriate management?</p> <p>A. Antihistamines B. Adrenaline C. Ursodeoxycholic acid D. Ganciclovir E. Benzodiazepine</p>



10.	<p>A 29 year old woman has developed an itchy scaly rash particularly over her wrist with fine white streaks overlying the lesion. Her nails have ridges and her buccal mucosa is lined with a lacy white pattern. What is the SINGLE most likely diagnosis?</p> <p>A. Psoriasis B. Scabies C. Lichen planus D. Dermatitis herpetiformis E. Candida infection</p>
11.	<p>A 44 year old man complains of a solitary, shiny, red nodule which has been growing on his nose for several months. It is firm with a central depression. It is 0.6 cm in size. What is the SINGLE most likely diagnosis?</p> <p>A. Basal cell carcinoma B. Squamous cell carcinoma C. Molluscum contagiosum D. Keratoacanthoma E. Kaposi's sarcoma</p>
12.	<p>A 7 year old girl has been treated with penicillin for a sore throat, fever and cough. A few hours later she develops a skin rash and complains of pruritus. What is the SINGLE most probable diagnosis?</p> <p>A. Erythema nodosum B. Erythema multiforme C. Steven Johnson Syndrome D. Erythema marginatum E. Erythema gangrenosum</p>
13.	<p>A 55 year old woman has fatigue and arthralgia. She has been feeling increasingly tired over the last few months with aches and pains especially in the morning. On examination, a ring-shaped, raised scaly lesions are noticed on sun-exposed areas. Her past medical history includes chronic heart failure which is treated with isosorbide dinitrate and hydralazine. What is the SINGLE most likely positive antibody?</p> <p>A. Anti-dsDNA B. Anti-histone C. Anti-Smith D. Anti-Jo-1 E. Anti-La</p>
14.	<p>A 72 year old woman admitted for community acquired pneumonia was given Amoxicillin. 90 minutes after treatment, she developed a generalised rash with a necrotic base sparing the oral mucosa and genital area. What is the SINGLE most likely diagnosis?</p> <p>A. Erythema multiforme B. Erythema nodosum C. Erythema migrans</p>



	D. Erythema marginatum E. Urticaria
15.	<p>A 58 year old man complains of nose disfigurement. He has a history of facial erythema particularly of the cheeks and nose. Red papules and pustules have been erupting at intervals over the last 10 years. He notices that his face becomes flushed commonly after consumption of alcohol. On examination, he is noted to have rhinophyma. What is the SINGLE most likely diagnosis?</p> <p>A. Eczema B. Acne rosacea C. Pemphigus vulgaris D. Dermatomyositis E. Tinea versicolor</p>
16.	<p>A 32 year old woman has malaise, fatigue, weight loss and fever. On examination, a Malar rash with sparing of nasolabial fold can be seen. She also complains of joint stiffness and pain. What is the SINGLE most appropriate investigation?</p> <p>A. Anti-dsDNA B. Anti-histone C. Anti-centromere D. Anti-Jo-1 E. Anti-Scl-70</p>
17.	<p>A 19 year old man complains of shortness of breath, wheeze, and cough. He also has dry scaly skin with rashes that are itchy. His brother suffers from similar symptoms. What is the single SINGLE most likely diagnosis?</p> <p>A. Scabies B. Eczema C. Rheumatism D. Dermatitis E. Psoriasis</p>
18.	<p>A 25 year old woman presents with pruritic purple papules on the flexor surface of her wrist. A white lacy pattern is identified on her buccal mucosa. What is the SINGLE most likely diagnosis?</p> <p>A. Leukoplakia B. Candida infection C. Lichen simplex D. Lichen sclerosus E. Lichen planus</p>
19.	<p>A 14 year old girl has developed an itchy, scaly patch on her scalp. She had a similar patch that cleared spontaneously 2 years ago. Her aunt has a similar undiagnosed rash on the extensor aspects of her elbows and knees. What is the SINGLE most likely diagnosis?</p>



	<p>A. Eczema B. Fungal infection C. Impetigo D. Lichen planus E. Psoriasis</p>
20.	<p>A 38 year old man presents with an acute infection of the skin on his the leg. A diagnosis of cellulitis has been made. He has no known allergies. What is the SINGLE best choice of antibiotic to be prescribed?</p> <p>A. Flucloxacillin B. Metronidazole C. Vancomycin D. Ceftriaxone E. Clindamycin</p>
21.	<p>A 35 year old woman has tiredness and joint pain. She has been undergoing treatment for tuberculosis. On examination, erythematous macules and papules are seen on face, upper chest, and arms in photodistribution. What is the SINGLE most likely positive antibody?</p> <p>A. Anti-dsDNA B. Anti-histone C. Anti-Smith D. Anti-Jo-1 E. Anti-La</p>
22.	<p>A 4 year old child is brought to your GP practice by her mother. She has painful crusted lesions on her face and neck, mostly localized around her mouth. Her face feels hot to the touch. She is otherwise well. What is the SINGLE most likely diagnosis?</p> <p>A. Contact dermatitis B. Impetigo C. Measles D. Chicken pox E. Eczema</p>
23.	<p>A 22 year old man presents to the Accident and Emergency department with pain on his left leg. On examination, the area is tender, slightly swollen and inflamed. He has a temperature of 38.6°C. His blood results show:</p> <p>Haemoglobin 138 g/L White cell count 23 x 10⁹/L CRP 58</p> <p>The patient has no known allergies and takes no other regular medications. What is the SINGLE most appropriate first line antibiotic to be prescribed?</p> <p>A. Flucloxacillin</p>



	<p>B. Metronidazole C. Vancomycin D. Gentamicin E. Terbinafine</p>
24.	<p>A 67 year old builder has a persistent nodular lesion on upper part of his right pinna. On examination, there is a central depression and raised areas with telangiectasia around the lesion. It is 0.5 cm in size. What is the SINGLE most likely diagnosis</p> <p>A. Basal cell carcinoma B. Squamous cell carcinoma C. Keratoacanthoma D. Actinic keratosis E. Bowen's disease</p>
25.	<p>A 12 year old boy presents with pruritus especially around the wrists and palms of his hands. On examination, his skin is dry and red. His mother is asthmatic and older brother has hay fever. What is the SINGLE most likely diagnosis?</p> <p>A. Dermatitis herpetiformis B. Scabies C. Eczema D. Hand foot disease E. Systemic lupus erythematosus</p>
26.	<p>A 34 year old cab driver presents with an urticarial rash that is very pruritic. Due to his job, he has requested for any medication to help with the itch which will not make him drowsy. What is the SINGLE most appropriate medication to prescribe?</p> <p>A. Oral chlorpheniramine B. Oral prednisolone C. Oral cetirizine D. Emollients E. Hydrocortisone ointment</p>



EMERGENCY MEDICINE



1.	<p>A 17-year-old girl has taken an overdose of 30 paracetamol tablets 3 hours ago. She is extremely anxious but otherwise asymptomatic. She has no past medical history. She weighs 50kg. BP 120/70 mmHg, heart rate is 100 bpm, SaO₂ 98% on air. Which is the SINGLE most appropriate next step?</p> <p>A. Activated charcoal</p> <p>B. Gastric lavage</p> <p>C. N-acetylcysteine infusion</p> <p>D. Paracetamol plasma level 4 hours after overdose</p> <p>E. Urgent liver function tests + clotting screen</p>
2.	<p>A 24-year-old man presents with acute respiratory distress after being stabbed in the back. The trachea is not deviated, but he has engorged neck veins and no breath sounds on his right chest. He has a blood pressure of 80/50 mmHg, a pulse of 135 beats/minute, and a respiratory rate of 35 breaths/minute. What is the SINGLE most likely diagnosis?</p> <p>A. Tension pneumothorax</p> <p>B. Cardiac tamponade</p> <p>C. Simple pneumothorax</p> <p>D. Haemothorax</p> <p>E. Pleural effusion</p>



3.	<p>A 33-year-old man was admitted to the emergency department after a head injury. On arrival, he has a Glasgow Coma Scale score of 15. A few hours later, his Glasgow Coma Scale score drops to 12. What is the SINGLE most appropriate immediate action?</p> <p>A. Computed tomography head scan</p> <p>B. X-ray skull</p> <p>C. Intravenous mannitol</p> <p>D. Emergency burr hole</p> <p>E. Shift to operating room</p>
4.	<p>A 32-year-old man presents to the emergency department after a motorcycle crash. The patient has bruises around the left orbital area. GCS is 13. On examination, an alcoholic breath is noticed. Shortly afterwards, his GCS drops to 8. What is the SINGLE most important initial investigation?</p> <p>A. MRI head</p> <p>B. CT head</p> <p>C. Chest X-ray</p> <p>D. CT angio brain</p> <p>E. Head X-ray</p>
5.	<p>A 33-year-old lady who is an opiate drug addict wants to quit her drug abuse problem. She is supported by her friends and family. What is the SINGLE most appropriate treatment to combat withdrawal symptoms?</p> <p>A. Benzodiazepines</p> <p>B. Chlordiazepoxide</p> <p>C. Naloxone</p> <p>D. Methadone</p> <p>E. Disulfiram</p>
6.	<p>A 9-year-old child was admitted following a road traffic accident. On admission, his initial GCS was 15. His GCS dropped to 13 during the night. What is the SINGLE most appropriate management?</p>



	<p>A. Refer to neuro-surgeon</p> <p>B. IV fluids</p> <p>C. Intubation</p> <p>D. CT head</p> <p>E. Skull X-ray</p>
7.	<p>A 25-year-old man has been stabbed in the right-hand side of his abdomen with a small knife. He presents with severe pain in his right upper quadrant with guarding. IV fluids are being administered. He is very anxious and agitated. His temperature is 36.5°C, heart rate 120 bpm, BP 85/55 mmHg, SaO₂ 97% on 10L oxygen. The A&E doctor thinks his liver might have been damaged in the attack and calls the surgeons to assess him. Which is the SINGLE most appropriate initial management?</p> <p>A. Cross-match for packed red cells</p> <p>B. Fresh frozen plasma</p> <p>C. Liver enzymes</p> <p>D. Immediate laparotomy</p> <p>E. Urgent CT scan of the abdomen</p>
8.	<p>A 6-month-old boy has been brought A&E following an apnoeic episode at home. He is now completely well but his parents are very anxious as they family friend's child died of sudden infant death syndrome at a similar age. The parents would like to know how to perform CPR on a baby of his age. What is the SINGLE most recommended technique for cardiac compressions?</p> <p>A. All fingers of both hands</p> <p>B. All fingers of one hand</p> <p>C. Palm of one hand</p> <p>D. Thumb of one hand</p> <p>E. Index and middle fingertips of one hand</p>
9.	<p>A 33-year-old man is stabbed with a knife in his thigh. He has tried to use a towel to stop the bleeding but has bled so much that the towel is now soaked with blood. His blood pressure is 85/50 mmHg,</p>



	<p>pulse rate is 132 beats/minute and respiratory rate is 31 breaths/minute. What percentage of circulatory blood did he lose?</p> <p>A. <15%</p> <p>B. 15-30%</p> <p>C. 30-40%</p> <p>D. 40-50%</p> <p>E. >50%</p>
10.	<p>A 12-year-old comes into the emergency department with severe burns all over his body from a house fire. There is oropharyngeal swelling and soot in the mouth. He is in severe pain. What is the SINGLE most appropriate management?</p> <p>A. Refer to burn unit</p> <p>B. IV Fluids</p> <p>C. IV Antibiotic</p> <p>D. IV Analgesia</p> <p>E. Call a senior anaesthetist</p>
11.	<p>A 55-year-old lady comes in with severe haematemesis. She is anxious and aggressive. Her medical history includes liver disease. Her INR is 9; heart rate is 110 bpm; Systolic BP is 110 mmHg; SpO2 is 94%. What is the SINGLE most appropriate management?</p> <p>A. Oxygen</p> <p>B. IV Steroids</p> <p>C. Whole blood</p> <p>D. IV fluids</p> <p>E. Fresh frozen plasma (FFP)</p>
12.	<p>A 24-year-old woman has been brought to the emergency department having taken 36 tablets of paracetamol following an argument with her partner. She weighs 60 kg. She has no previous psychiatric history and is physically well. What is the SINGLE most appropriate management?</p>



	<p>A. Refer to social worker</p> <p>B. Admit to psychiatric ward</p> <p>C. Discharge home with advice</p> <p>D. Refer to clinical psychologist</p> <p>E. Admit to medical ward</p>
13.	<p>A 14-year-old girl has been brought to the emergency department having taken an unknown amount of paracetamol 2 hours ago. She has no previous psychiatric history and is physically well. When would be the SINGLE most appropriate time to attain plasma paracetamol concentration levels following her presentation to A&E?</p> <p>A. Immediately</p> <p>B. In 2 hours' time</p> <p>C. In 4 hours' time</p> <p>D. In 8 hours' time</p> <p>E. In 22 hours' time</p>
14.	<p>A 35-year-old man with a known peanut allergy presents to Accident & Emergency after having unknowingly ingested a cupcake with nuts. He has widespread wheezes bilaterally on auscultation and he is experiencing stridor and dyspnoea. His lips have also started to swell. IV access has been established. What is the SINGLE most appropriate immediate treatment for him?</p> <p>A. Intramuscular adrenaline 1:1000</p> <p>B. Intravenous adrenaline 1:1000</p> <p>C. Intravenous hydrocortisone</p> <p>D. Intravenous diphenhydramine</p> <p>E. Intramuscular adrenaline 1:10000</p>
15.	<p>An 18-year-old, previously well student in his first year at university, was brought in to the emergency department in an agitated, deluded and disoriented state. What is the SINGLE most probable reason for his condition?</p>



	<p>A. Drug toxicity</p> <p>B. Delirium tremens</p> <p>C. Infection toxicity</p> <p>D. Electrolyte imbalance</p> <p>E. Head injury</p>
16.	<p>A 60 year old woman with history of a urinary tract infection, hypertension and gallstones presents to the emergency department. She complains of upper right abdominal pain, rigors and feeling unwell. Her urine dipstick is negative for white cell and nitrates. She has a temperature of 38.9°C. Her blood pressure is 88/55 mmHg, oxygen saturation of 92% on room air, pulse rate of 130 beats/minute and respiratory rate of 24 breaths/minute. What is the SINGLE most likely diagnosis?</p> <p>A. Sepsis</p> <p>B. Urinary tract infection</p> <p>C. Pre-eclampsia</p> <p>D. Septic shock</p> <p>E. Cirrhosis</p>
17.	<p>A 31-year-old man was knocked down during a fight in the waiting room of the emergency department. He is now unconscious and unresponsive. What is the SINGLE most important first action?</p> <p>A. Turn patient and put in recovery position</p> <p>B. Airway management</p> <p>C. Blood pressure measurement</p> <p>D. Assess Glasgow Coma Scale</p> <p>E. Initiate cardiac compressions</p>
18.	<p>A 15-year-old girl is admitted in the medical ward after taking 28 tablets of paracetamol with a large amount of alcohol. Her plasma paracetamol concentration taken 4 hours' post ingestion is just below</p>



	<p>the concentration that would suggest treatment with N-acetylcysteine. What is the SINGLE most appropriate next course of action?</p> <p>A. Refer to psychiatric team</p> <p>B. Discharge home</p> <p>C. Start N-acetylcysteine</p> <p>D. Activated charcoal</p> <p>E. Liver transplant</p>
19.	<p>A 70-year-old male presents with a 2 day history of productive cough and shortness of breath. He complains of chills and rigors. He is ill-looking. He has a temperature of 38.5°C, respiratory rate of 26 breaths/minute, and a pulse rate of 125 beats/min. His blood pressure is 88/45 mmHg and oxygen saturation is 90% on room air. On auscultation, bronchial breath sounds are heard in the periphery. He is given a fluid challenge of 1L normal saline. His blood pressure post fluid challenge is 90/40 mmHg. What is the SINGLE best term to use in his condition?</p> <p>A. Sepsis</p> <p>B. Severe sepsis</p> <p>C. Septic shock</p> <p>D. Systemic inflammatory response syndrome (SIRS)</p> <p>E. Infection</p>
20.	<p>A 9-year-old girl is brought by her mother to the A&E with stridor, wheezing and a rash. Her lips are beginning to swell. The young girl came from visiting her friend at her farm house. What is the SINGLE most appropriate treatment?</p> <p>A. 0.15 ml adrenaline intramuscularly</p> <p>B. 0.3 ml adrenaline intramuscularly</p> <p>C. 0.5 ml adrenaline intramuscularly</p> <p>D. 0.3 ml adrenaline orally</p> <p>E. Intravenous chlorpheniramine</p>



21.	<p>A 12-year-old girl when playing in the garden accidentally stepped on a hive and was bitten several times. She has numerous wheals on her body and complains of severe itching which is worsening in the last few hours. What is the SINGLE most appropriate management?</p> <p>A. Oral antihistamine</p> <p>B. IV antihistamine</p> <p>C. IM adrenaline</p> <p>D. Oral ciprofloxacin</p> <p>E. Reassurance</p>
22.	<p>Parents of an 11-month-old baby want to know the steps for CPR for their child as they have recently attended a funeral of their neighbour's child who died very suddenly after an episode of apnoea. They want to know what they can do if an event like this occurs. What is the SINGLE most appropriate advice in regards to CPR for their child?</p> <p>A. Index and middle finger compression</p> <p>B. Compression with heel of one hand</p> <p>C. Compression with heel of two hands with fingers interlocked</p> <p>D. Compression with rescue breaths 30:2</p> <p>E. Give 2 rescue breaths before starting compression</p>
23.	<p>A 21-year-old lady after a heavy bout of drinking last night comes to the emergency department with vomiting blood, feeling dizzy, and having intense abdominal pain. On examination, her limbs feel cold. After initial resuscitation with oxygen and fluids, she still continues to bleed and continues to vomit blood. She has a pulse of 130 beats/minute and blood pressure of 85/58 mmHg. What is the SINGLE next best step?</p> <p>A. Clotting screen</p> <p>B. Ultrasound</p> <p>C. Computed tomography</p> <p>D. Endoscopy</p> <p>E.</p>



	Intravenous omeprazole
24.	<p>A 10-year-old boy is rushed to Accident & Emergency after his parents found him unconscious on the kitchen floor. It is revealed that he ingested some medication belonging to his grandmother. His grandmother was unable to identify which medications are missing. On examination, the child is hypotensive with dilated pupils and dryness in the mouth. His ECG showed prolongation of the PR, QRS and QT intervals. Which SINGLE most likely medication has he taken in excess?</p> <p>A. Amitriptyline B. Carbamazepine C. Digoxin D. Metoprolol E. Thiazide</p>
25.	<p>A 30-year-old patient is brought to the emergency department after a road traffic accident. He has multiple bruises on his chest and paradoxical breathing is observed. A chest X-ray shows a widened mediastinum and right-sided pulmonary contusion. He has a pulse of 129 beats/minute, a blood pressure of 100/70 mmHg and a respiratory rate of 38 breaths/minute. He has severe chest pain and is dyspnoeic. What is the SINGLE best management for his condition?</p> <p>A. 16-gauge needle into the 2nd intercostal space on the left B. Intercostal block anaesthesia C. Endotracheal intubation and positive-pressure ventilation D. 16-gauge needle into the 4th intercostal space on the right E. Consent the patient for surgery</p>
26.	<p>A 47-year-old man was involved in a road traffic accident and was brought to the emergency department by ambulance. He has signs of respiratory distress and has abdominal and chest pain. On physical examination, no breath sounds are heard over the entire left lung field. A nasogastric tube is seen curled into the left chest on a chest X-ray. What is the SINGLE most likely diagnosis?</p> <p>A. Diaphragm rupture B. Pneumothorax C. Splenic rupture</p>



	<p>D. Bowel perforation</p> <p>E. Gastric perforation</p>
27.	<p>A 9-month-old child aspirated a foreign object which was removed at the hospital. The child is now fine. His parents would like to know what they should do should this occur again. What is the SINGLE most appropriate advice to give them?</p> <p>A. Heimlich maneuver</p> <p>B. Turn the infant into a supine position and give chest thrust</p> <p>C. Turn the infant on his back and give five thrust to the middle of the back</p> <p>D. Place a clenched fist between the umbilicus and xiphisternum and give abdominal thrusts</p> <p>E. Turn infant into recovery position and open infant's mouth</p>
28.	<p>A 32-year-old man rescued from a building on fire presents unconscious without any evidence of burns and external injury. What is the SINGLE most appropriate management?</p> <p>A. Tight-fitting mask with 100% oxygen</p> <p>B. 24% oxygen by face mask</p> <p>C. Hyperbaric oxygen in a hyperbaric chamber</p> <p>D. Intubate and provide IPPV on 100% oxygen</p> <p>E. Refer to specialist unit</p>
29.	<p>A 21-year-old man, who was heavily drinking a few hours ago at an evening party presents to A&E with a history of vomiting repeatedly during the night. He vomited fresh blood an hour ago. His vitals are stable and his Hb is 15.3 g/dl. He has no further bleeding. What is the SINGLE most appropriate management?</p> <p>A. Admit and observe</p> <p>B. Discharge with advice</p> <p>C. Endoscopy</p> <p>D. Cross match 2 units of blood</p>



	E. Administer vasopressin analogue
30.	<p>An 18-year-old girl has taken an unknown dose of paracetamol yesterday. She cannot remember the exact time she took the tablets. She is extremely anxious but otherwise asymptomatic. She has no past medical history. She weighs 55kg. BP 120/75 mmHg, heart rate is 100 bpm, SaO₂ 99% on air. Which is the SINGLE most appropriate next step?</p> <p>A. Activated charcoal B. Gastric lavage C. N-acetylcysteine infusion D. Discharge home E. Psychiatric review</p>
31.	<p>A 21-year-old man has been found unconscious in an alleyway with a respiratory rate of 5 breaths/minute and a pulse of 55 beats/minute. His pupils are constricted. What is SINGLE most appropriate management?</p> <p>A. Methadone B. Naloxone C. Flumazenil D. Thiamine E. Dextrose</p>
32.	<p>A 24-year-old male presents to A&E with 40% partial thickness burns. His pulse rate is 105 bpm and respiratory rate is 25 breaths per minute. His systolic blood pressure is 80 mmHg. What is the SINGLE most appropriate management?</p> <p>A. IV fluids calculated from the time of hospital arrival B. IV fluids calculated from the time of burn C. Oral rehydration D. IV dextrose stat E.</p>



	Ointments
33.	<p>A 35-year-old man had a fight in a bar which involved blunt trauma to his head. Since the injury, he has developed bleeding from the auditory meatus associated with ringing and hearing loss in his ear. Clear fluid is seen coming from his nose. What is the SINGLE most appropriate investigations of choice?</p> <p>A. Computed tomography scan of brain</p> <p>B. X-ray skull</p> <p>C. Otoscopy</p> <p>D. Magnetic resonance imaging of head</p> <p>E. Coagulation study</p>
34.	<p>A 24-year-old man was under the custody of police when he was punched. He is now cyanosed and unresponsive. What is the SINGLE most appropriate initial action?</p> <p>A. IV fluids</p> <p>B. Clear airway</p> <p>C. Turn patient and put in recovery position</p> <p>D. Give 100% oxygen</p> <p>E. Analgesia</p>
35.	<p>An 8-year-old boy is rushed into A&E coughing, cyanosed and with a urticaria rash. His mother tells the staff that he began to cough after eating a cookie at a garden party. What is the SINGLE most likely diagnosis?</p> <p>A. Aspiration of food</p> <p>B. Allergic reaction</p> <p>C. Diffuse Esophageal Spasm</p> <p>D. Tracheoesophageal fistula</p> <p>E. Achalasia</p>



36.	<p>A 33-year-old woman has recurring tightness in her chest accompanied by palpitations and sweating. These episodes occur several times a week and are associated with increased respiratory rate and tingling and numbness around the mouth and fingers. What is the SINGLE most likely diagnosis?</p> <p>A. Pericarditis B. Stable angina C. Panic attack D. Gastro-oesophageal reflux disease E. Aortic aneurysm</p>
37.	<p>A 16-year-old girl has taken an overdose of 34 paracetamol tablets earlier this morning. She is extremely anxious but otherwise asymptomatic. She has no past medical history. Paracetamol plasma levels were taken at 4 hours from time of overdose and is above the treatment line. She weighs 55kg. BP 120/75 mmHg, heart rate is 100 bpm, SaO₂ 99% on air. Which is the SINGLE most appropriate next step?</p> <p>A. Activated charcoal B. Gastric lavage C. N-acetylcysteine infusion D. Discharge home E. Urgent liver function tests + clotting screen</p>
38.	<p>A 34-year-old man had a car crash and is being observed in the emergency department. He is slowly deteriorating and his GCS has fallen from 13 to 7. What is the SINGLE most appropriate next step in management?</p> <p>A. CT B. Burr hole C. MRI D. Intubation E. IV fluids</p>



39.	<p>A 31-year-old man was involved in a road traffic accident and has severe pain at the right outer upper thigh and groin. There is clear deformity of the hip and shortening of the right leg. A femoral shaft fracture is suspected. His blood pressure is 100/70 mmHg. He has a heart rate of 90 beats/minute and a respiratory rate of 19 breaths/minute. He is saturating at 97% at room air. What is the SINGLE most appropriate next action?</p> <p>A. Anteroposterior pelvic and lateral hip X-rays</p> <p>B. Intravenous fluids</p> <p>C. Thomas' splint</p> <p>D. Full blood count and cross match</p> <p>E. Magnetic resonance imaging (MRI)</p>
40.	<p>A 23-year-old woman has been found unconscious by her partner. There are several packets of paracetamol and an empty bottle of vodka alongside her. When she comes to in the Emergency Department, she is confused and unable to estimate when she took the tablets. Her Glasgow Coma Scale (GCS) score is 14/15. Which is the SINGLE most appropriate next step?</p> <p>A. CT Head</p> <p>B. Haemodialysis</p> <p>C. Start N-acetylcysteine immediately</p> <p>D. Start N-acetylcysteine 4 hours after presentation</p> <p>E. Take paracetamol levels and treat if raised</p>
41.	<p>A 27-year-old man presents to the emergency department after a road traffic accident where his right foot was stuck under a truck for several hours. On examination, his right foot is swollen and tender. Sensation is reduced between the space of the 3rd metatarsal and big toe. His dorsalis pedis pulse is not felt. What is the SINGLE most likely diagnosis?</p> <p>A. Compartment syndrome</p> <p>B. Artery rupture</p> <p>C. Arterial embolism</p> <p>D. Deep vein thrombosis</p> <p>E.</p>



	Fibular fracture
42.	<p>A 32-year-old woman starts bleeding profusely in theatre during an elective caesarean section. She had a spinal block and was awake throughout the procedure. She is now found to be unconscious. Her BP has dropped to 70/40 mmHg. What is the SINGLE most likely diagnosis?</p> <p>A. Primary haemorrhage B. Reactionary haemorrhage C. Secondary haemorrhage D. Pulmonary embolism E. Septic shock</p>
43.	<p>A 35-year-old patient is brought to the emergency department after having a road traffic accident. He has bruises on his chest. A chest X-ray shows a widened mediastinum. He has a pulse of 129 beats/minute, a blood pressure of 80/40 mmHg and a respiratory rate of 34 breaths/minute. What is the SINGLE most likely diagnosis?</p> <p>A. Myocardial infarction B. Abdominal aortic aneurysm C. Thoracic aortic rupture D. Flail chest E. Pleural effusion</p>
44.	<p>A 55-year-old women recovering from a surgery for a toxic goitre is found to be cyanosed in the recovery room. Her neck is tense and her BP is 85/45 mmHg. There is blood oozing from the drain. What is the SINGLE most likely diagnosis?</p> <p>A. Primary haemorrhage B. Reactionary haemorrhage C. Secondary haemorrhage D. Thyroid storm E.</p>



	Tracheomalacia
45.	<p>A 5-year-old boy with a febrile convulsion lasting eight minutes. He has been given IV lorazepam to control his seizures. What is the SINGLE most likely side effect of IV lorazepam that is potentially life threatening?</p> <p>A. Amnesia B. Anaphylactic shock C. Apnoea D. Bronchospasm E. Cardiac arrhythmia</p>
46.	<p>A 34-year-old man was involved in a road traffic accident. Whilst in the ambulance his Glasgow Coma Scale deteriorates from a score of 13 to 9. His respiratory rate increases from 30 to 48 breaths/minute. What is the SINGLE most appropriate management?</p> <p>A. Intravenous fluids B. Needle thoracentesis C. 100% oxygen D. Portable X-ray E. Intravenous hydrocortisone</p>
47.	<p>A 47-year-old man had a road traffic accident and has presented to A&E with multiple injuries. On physical examination, perineal bruising was noticed. A pelvic fracture has been confirmed. He has not passed urine since the accident which was 7 hours ago. What is the SINGLE most appropriate next course of action?</p> <p>A. Urethral catheterization B. Suprapubic catheterization C. IV fluids D. IV furosemide E.</p>



	Insulin
48.	<p>A 76-year-old woman has become tired and confused following an influenza like illness. She is vomiting and with abdominal pain. She is also breathless with signs of consolidation of the left lung base. Her temperature is 39.0 °C. She has a blood pressure of 80/60 mmHg A blood count showed:</p> <p>Haemoglobin 120 g/L White cell count 19.1 x 10⁹/L Platelets 90 x 10⁹/L.</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Drug toxicity B. Delirium tremens C. Toxic shock syndrome D. Hypoglycaemia E. Electrolyte imbalance</p>
49.	<p>A 19-year-old man is rushed into A&E by his friends who left him immediately before they could be interviewed by the medical staff. He is semiconscious. His respiratory rate is 7/min, blood pressure is 120/75 mmHg, and pulse rate is 60 bpm. He is noted to have needle track marks on his arms and he has pinpoint pupils. What is the SINGLE most appropriate management?</p> <p>A. Insulin B. Naloxone C. Methadone D. Gastric lavage E. Flumazenil</p>
50.	<p>A 13-year-old boy presents with recurrent episodes of facial and tongue swelling. He also complains of abdominal pain which occurs occasionally. His father has had similar episodes. What is the SINGLE most likely diagnosis?</p> <p>A. C1 esterase inhibitor deficiency B. Nephrotic syndrome</p>



	<p>C. Acute urticaria</p> <p>D. Anaphylaxis</p> <p>E. Sjogren's syndrome</p>
51.	<p>A 25-year-old male with a history of frequent binge drinking presents 4 hours after having had a takeaway meal following a night's heavy drinking. He complains of nausea and has vomited on several occasions. After the last vomiting episode, he vomited approximately a cupful of blood. On admission, he smells of alcohol, pulse of 100 beats/minute, blood pressure of 140/80 mmHg. He has some tenderness in the epigastrium. What is the SINGLE most likely diagnosis?</p> <p>A. Gastric carcinoma</p> <p>B. Mallory-weiss tear</p> <p>C. Oesophageal carcinoma</p> <p>D. Oesophageal varices</p> <p>E. Peptic ulcer</p>
52.	<p>A 14-year-old boy fell and hit his head in the playground school. He did not lose consciousness but has swelling and tenderness of the right cheek with a subconjunctival haemorrhage on his right eye. What is the SINGLE most appropriate initial investigation?</p> <p>A. Head CT</p> <p>B. Electroencephalogram</p> <p>C. Head MRI</p> <p>D. Skull X-ray</p> <p>E. Facial X-ray</p>
53.	<p>An 18-month-old boy pulled over a cup of hot tea that was on a high table. The hot liquid splashed over him and he now presents with a 6% partial thickness burn on his chest. What is SINGLE best treatment for him?</p> <p>A. IV crystalloids</p> <p>B. IV colloids</p>



	<p>C. No need for IV treatment</p> <p>D. IV dextrose bolus</p> <p>E. IV albumin infusion</p>
54.	<p>Parents of a 3-year-old child have recently attended a funeral of their neighbour's son who died following a cardiorespiratory arrest. They want to know the algorithm for paediatric basic life support should their 3-year-old child has an arrest. What is the SINGLE most accurate advice would you give?</p> <p>A. Ratio of 5 compression to 1 breath</p> <p>B. Ratio of 5 compression to 2 breaths</p> <p>C. Ratio of 15 compressions to 2 breaths with nose pinched</p> <p>D. Ratio of 15 compressions to 2 breaths without nose pinched</p> <p>E. Ratio of 30 compressions to 2 breaths</p>
55.	<p>A 78-year-old woman presents to A&E with severe epigastric pain and vomiting. The pain is referred to her right shoulder. Generalised rigidity is noted when examining. She has a temperature of 37.2°C and a pulse of 102 beats/minute. Her medical history is significant for rheumatoid arthritis. What is the SINGLE most appropriate investigation?</p> <p>A. Ultrasound Abdomen</p> <p>B. Sigmoidoscopy</p> <p>C. Colonoscopy</p> <p>D. Erect chest X-ray</p> <p>E. Upper GI endoscopy</p>
56.	<p>A 23-year-old girl presented with perioral paraesthesia and carpopedal spasm 20 minutes after a huge argument with her boyfriend. What is the SINGLE most appropriate next course of action?</p> <p>A. SSRI</p> <p>B. Diazepam</p> <p>C. Rebreathe into a paper bag</p>



	<p>D. Propranolol</p> <p>E. Alprazolam</p>
57.	<p>Which of the following formulas is used for calculating fluids for burn patients?</p> <p>Plab Lab Values</p> <p>A. 4 x weight(lbs) x area of burn (in ml of fluids)</p> <p>B. 4 x weight(kgs) x area of burn (in L of fluids)</p> <p>C. 4 x weight(kgs) x area of burn (in ml of fluids)</p> <p>D. 4 x weight(lbs) x area of burn (in L of fluids)</p> <p>E. 4.5 x weight(kgs) x area of burn (in dL of fluids)</p>
58.	<p>A butcher comes to the emergency department after accidentally stabbing his groin with a knife. He tried to use a towel to stop the bleeding but has bled so much that the towel is now soaked with blood. His blood pressure is 80/50 mmHg and pulse is 130 beats/minute. What percentage of circulatory blood did he lose?</p> <p>A. <15%</p> <p>B. 15-30%</p> <p>C. 30-40%</p> <p>D. 40-50%</p> <p>E. >50%</p>
59.	<p>A 4-year-old child playing with toys unattended suddenly develops breathlessness and stridor and is rushed into the hospital by his father. The child is drooling and unable to swallow. What is the SINGLE best investigation likely to lead to a diagnosis?</p> <p>A. Laryngoscopy</p> <p>B. Chest X-ray</p> <p>C. Peak flow meter</p> <p>D. Arterial blood gas</p>



	E. Pulse oximeter
60.	<p>A 24-year-old male presents to A&E with 40% partial thickness burns after having been in a house fire. His pulse rate is 115 bpm and respiratory rate is 29 breaths per minute. His systolic blood pressure is 80 mmHg. What is the SINGLE most appropriate management?</p> <p>A. IV fluids calculated from the time of hospital arrival</p> <p>B. IV fluids calculated from the time of burn</p> <p>C. Oral rehydration</p> <p>D. IV dextrose stat</p> <p>E. IV morphine</p>
61.	<p>An 18-year-old female was brought into the ED after ingestion of 28 paracetamol tablets after breaking up with her boyfriend. She came in confused and unwell. She was admitted in the medical ward and N-Acetylcysteine was given. 24 hours later, her laboratory results show a normal FBC, an arterial pH of 7.1, Prothrombin time of 17 seconds and creatinine of 255μmol/L. She is still confused and lethargic. What is the SINGLE most appropriate management?</p> <p>Normal Lab values: Creatinine 70–150μmol/L pH 7.35–7.45 Prothrombin time (PT): 11-14 sec</p> <p>A. Observe for another 24 hours</p> <p>B. Admit to psychiatric ward</p> <p>C. Intravenous fluids</p> <p>D. Administer charcoal</p> <p>E. Liver transplantation</p>
62.	<p>A 34-year-old man was brought to the ED after a road traffic accident. His blood pressure is 50/0 mmHg and respiratory rate is 34 breaths/minute. His chest wall is not moving symmetrically. What is the SINGLE most appropriate initial action?</p> <p>A. IV fluid infusion</p> <p>B.</p>



	<p>Intubation and ventilation</p> <p>C. Analgesia</p> <p>D. Transfer to ITU</p> <p>E. Chest X-ray</p>
63.	<p>A 24-year-old man comes into the emergency department with partial thickness burns all over his body from a house fire. He has persistent cough and stridor. There are deep neck burns, carbonaceous sputum and soot in the mouth and oedema of the oropharynx. What is the SINGLE most appropriate management?</p> <p>A. Topical antibiotics</p> <p>B. Fluid resuscitation</p> <p>C. Immediate burn care and cooling</p> <p>D. Intravenous analgesia</p> <p>E. Tracheal intubation</p>
64.	<p>A 25-year-old woman has been feeling anxious and nervous for the last few months. She also complains of palpitations and tremors. Her symptoms develop rapidly and last for a few minutes. She mentions that taking alcohol initially helped her relieve her symptoms but now this effect is wearing off and she has palpitations and tremors even after drinking alcohol. What is the SINGLE most likely diagnosis?</p> <p>A. Panic attacks</p> <p>B. Depression</p> <p>C. Obsessive-compulsive disorder (OCD)</p> <p>D. Alcohol addiction</p> <p>E. Generalised Anxiety Disorder (GAD)</p>
65.	<p>A butcher comes into A&E after accidentally stabbing his groin with a knife. He tried to use a towel to stop the bleeding but has bled so much that the towel is now soaked with blood. His</p> <p>Blood pressure is 75/40 mmHg and pulse is 120 beats/minute. What is the SINGLE most appropriate initial management?</p>



	<p>A. Blood transfusion</p> <p>B. IV fluids</p> <p>C. Fresh frozen plasma</p> <p>D. Refer to surgeon</p> <p>E. Oral rehydration</p>
66.	<p>A 49-year-old woman presents to the Emergency Department with a productive cough of green sputum. She feels unwell, feverish and lethargic. On examination, bronchial breathing is heard at her right base. She has a respiratory rate of 27 breaths/minute, oxygen saturation of 90% on room air, pulse rate of 130 beats/minute and a blood pressure of 85/40 mmHg. What is the SINGLE next most appropriate action?</p> <p>A. Intravenous fluids</p> <p>B. Oral antibiotics</p> <p>C. Chest X-ray</p> <p>D. Intramuscular adrenaline</p> <p>E. Sputum culture</p>
67.	<p>A 36-year-old man rescued from a building on fire presents headache, vertigo, nausea, confusion and vomiting. He complains of feeling weak. He is without any evidence of burns or external injury. What is the SINGLE most appropriate management?</p> <p>A. Tight-fitting mask with 100% oxygen</p> <p>B. 24% oxygen by face mask</p> <p>C. Hyperbaric oxygen in a hyperbaric chamber</p> <p>D. Intubate and provide IPPV on 100% oxygen</p> <p>E. Refer to specialist unit</p>
68.	<p>A 20-year-old man presents to A&E after having severe injuries from a road traffic accident. On presentation, he is breathless and has severe chest pain. His systolic blood pressure is 70 bpm and his pulse rate is 130/min What is the SINGLE most appropriate initial action?</p>



	<p>A. Antibiotics</p> <p>B. Analgesia</p> <p>C. High flow oxygen</p> <p>D. Secure venous access</p> <p>E. Refer to surgeon</p>
69.	<p>A 16-year-old female teenager was brought to the emergency department after being stabbed on the upper right side of his back 2 hours ago. An erect Chest X-ray revealed homogenous opacity on the lower right lung. The trachea is centrally placed. She has a blood pressure of 80/60 mmHg, a pulse of 122 beats/minute, and a respiratory rate of 34 breaths/minute. What is the SINGLE most likely diagnosis?</p> <p>A. Pneumothorax</p> <p>B. Haemothorax</p> <p>C. Pneumonia</p> <p>D. Tension pneumothorax</p> <p>E. Empyema</p>
70.	<p>A 32-year-old man is brought to A&E by his wife with symptoms of chest pain, abdominal pain, palpitations, nausea and altered mental status. His wife says that she found a bottle of empty medication on the toilet floor and it is likely that he consumed the whole bottle. He has a respiratory rate of 34 breaths/minute. His arterial blood gas shows the following:</p> <p>pH 7.21 pCO₂ 3.0 kPa P0₂ 13 Bicarbonate 18 mmol/L</p> <p>What is the SINGLE most likely medication that he could have taken?</p> <p>A. Paracetamol</p> <p>B. Aspirin</p> <p>C. Diclofenac</p> <p>D.</p>



	Enalapril E. Gentamicin
71.	<p>A 33-year-old man was involved in a road traffic accident. He has acute abdominal pain. On abdominal examination, there is bruising along the site of the portion of the seat belt. His abdomen is very tender. A computerised tomography scan of his abdomen shows a subcapsular splenic haematoma. He has a pulse rate of 90 beats/minute, respiratory rate of 24 breaths/minute, and a blood pressure of 120/80 mmHg. What is the SINGLE most appropriate action?</p> <p>A. Immediate laparotomy B. Refer to surgical team for observation C. Out patient department referral D. Routine referral for ultrasound scan E. Laparoscopy</p>
72.	<p>A 10-year-old comes is brought in by ambulance after having been rescued from a house fire. There is soot in his mouth and he has difficulty breathing. What is the SINGLE most appropriate management?</p> <p>A. Refer to burn unit B. Tracheal intubation C. Cricothyroidotomy D. Intermittent positive-pressure ventilation E. Administer 100% oxygen by face mask</p>
73.	<p>A 44-year-old man with a history of alcohol dependency presents with confusion. He responds poorly to questions and is seen to be irritable. He is unsteady and has unco-ordinated walking. His blood glucose is 3.5 mmol/L. He has no other relevant medical history. What is the SINGLE most appropriate immediate action?</p> <p>A. Intravenous thiamine B. Bolus of 50% glucose C. Intravenous 5% dextrose D.</p>



	Normal saline E. Computed tomography of head
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SAMPLE

ENDOCRINOLOGY



1.	<p>A 30 year old man has frequent episodic headaches with palpitations. He suffers from anxiety and has the occasional tremor on both his hands. His blood pressure was found to be 160/110 mmHg. What is the SINGLE most likely diagnosis?</p> <p>A. Hyperthyroidism B. Panic attacks C. Pheochromocytoma D. Cushing's disease E. Generalized anxiety disorder</p>
2.	<p>A 46 year old woman who lives in UK complains of weight gain, constipation and sensitivity to cold. Her pulse is regular at 50 beats/minute. What is the SINGLE most likely underlying mechanism for her condition?</p> <p>A. Autoimmune B. Degenerative C. Congenital D. Infective E. Nutritional</p>
3.	<p>A 39 year old man has 7 kg unintentional weight loss in the last two months despite having good appetite. He also complains of palpitations, sweating and diarrhoea. He has a lump in front of his neck which moves on swallowing. What is the SINGLE most appropriate diagnosis?</p>



	<p>A. Lymphoma B. Tuberculous lymphadenitis C. Thyroid Cancer D. Goiter E. Thyroid cyst</p>
4.	<p>A 56 year old man has noticed a strange tingling around his mouth for the past few weeks. It was very subtle at first but has become increasingly apparent. On examination, twitching facial muscles were noticed. His past medical history includes type 1 diabetes. What is the SINGLE most likely biochemical finding?</p> <p>A. Hyponatraemia B. Hypocalcaemia C. Hypercalcaemia D. Hypokalaemia E. Hyperkalaemia</p>
5.	<p>A 23 year old woman presents to the female health clinic with secondary amenorrhoea for a duration of 10 months. Her BMI is 30. She has dark pigmentation on her neck and severe acne on her face. She complains of feeling weak and lethargic. Blood test reveals a serum potassium level of 2.5mmol/L. What is the SINGLE most likely diagnosis?</p> <p>A. Acquired hypothyroidism B. Primary hyperaldosteronism C. Cushing's syndrome D. Polycystic ovarian syndrome E. Addison's disease</p>
6.	<p>A 67 year old male is urinating more than usual, particularly at night. He recently is feeling tired most of the time. He has a BMI of 33. His urine dipstick tested negative for nitrates but was positive for glucose. What is the SINGLE most appropriate next investigation?</p> <p>A. Prostate-specific antigen B. Urea, creatinine and electrolytes C. MSU culture and sensitivity D. Acid fast urine test E. Blood sugar</p>
7.	<p>A 40 year old male with pre-existing glomerulonephritis deteriorates and presents with oliguria.</p> <p>Lab results show the following: Serum K⁺ = 7.8mmol/L Urea = 13 mmol/L Creatinine = 342 mmol/L GFR = 19mL/h.</p> <p>What is the SINGLE most appropriate initial management?</p>



	<p>A. Calcium supplement B. Calcium resonate enema 30g C. Urgent haemodialysis D. Loop diuretics E. IV Calcium gluconate</p>
8.	<p>A 24 year old schizophrenic has been under antipsychotic treatment for the last year. He has been experiencing headaches and erectile dysfunction. Which medication is most likely to have caused this?</p> <p>A. Fluoxetine B. Citalopram C. Clozapine D. Haloperidol E. Risperidone</p>
9.	<p>A 50 year old lady presents with tiredness and weight gain over the last 6 months. She has glucose in her urine and has recently been diagnosed with hypertension. Investigations were performed and a diagnosis of Cushing's disease was made. Which of the following findings is NOT found in Cushing's disease?</p> <p>A. A high adrenocorticotrophic hormone (ACTH) level B. Failure to suppress morning cortisol with dexamethasone C. Hypertension requiring more than 2 antihypertensive agents D. Cortisol suppression with a high dose of dexamethasone E. Unilateral adrenal enlargement</p>
10.	<p>A 29 year old lady comes to the emergency department with complaints of palpitations, and excessive sweating that has been present for the past 4 days. She also feels warmer than usual. Her heart rate is 154 bpm and has an irregular rhythm. Her temperature is 38.7°C. What is the SINGLE most appropriate management?</p> <p>A. Amiodarone B. Beta blockers C. Adenosine D. Verapamil E. Flecainide</p>
11.	<p>A 44 year old man with acute renal failure presents with palpitations. His ECG shows tall tented T waves and a wide QRS complex. What is the SINGLE most appropriate next step?</p> <p>A. Dialysis B. IV calcium chloride C. IV insulin with dextrose D. Calcium resonium E. Nebulized salbutamol</p>



12.	<p>A 39 year old lady presents with gradually worsening headaches, visual disturbance, and lack of energy. MRI shows a 15mm tumour in the pituitary fossa. She has been on cabergoline for treatment of her prolactinoma but has not had any response. What is SINGLE most appropriate management?</p> <p>A. Radiotherapy B. Octreotide C. Craniotomy D. Transsphenoidal surgery E. Chemotherapy</p>
13.	<p>A 45 year old woman has lost weight 12 kg over the past half year. She has also noticed episodes where she feels her heart beat beating rapidly. She has a regular pulse rate of 90 bpm. Her ECG shows sinus rhythm. What is the SINGLE most appropriate investigation to be performed?</p> <p>A. Thyroid antibodies B. Thyroid function test C. Adrenocorticotrophic hormone stimulation (Synacthen®) test D. Echocardiogram E. Plasma glucose</p>
14.	<p>A 9 year old boy during operation and immediately after showed glycosuria. A day later his urinalysis was normal. What is the SINGLE most likely diagnosis?</p> <p>P</p> <p>A. Pre-diabetic state B. Normal finding C. Type 1 diabetes mellitus D. Type 2 diabetes mellitus E. Maturity Onset Diabetes of the Young</p>
15.	<p>A 42 year old lady has unexplained milk secretion from her nipples. Her last menstrual period was 6 months ago. She says she has been experiencing a loss of libido. What is the SINGLE most likely diagnosis?</p> <p>A. Hyperprolactinaemia B. Cushing's syndrome C. Pheochromocytoma D. Hyperthyroidism E. Hypoparathyroidism</p>
16.	<p>A 32 year old man has been repeatedly admitted to the hospital for what was described as anxiety or panic attacks associated with palpitations. On occasions he is found to be hypertensive and tremulous. What is the SINGLE most likely diagnosis?</p> <p>A. Hyperthyroidism B. Panic attacks C. Pheochromocytoma</p>



	<p>D. Cushing's disease</p> <p>E. Generalized anxiety disorder</p>
17.	<p>A 32 year old woman with headaches and lethargy has hypertension. A recent blood test shows a serum potassium of 2.9 mmol/l. What is the SINGLE most appropriate hormone test to order?</p> <p>A. Aldosterone</p> <p>B. Cortisol</p> <p>C. Thyroxine</p> <p>D. Renin</p> <p>E. Testosterone</p>
18.	<p>A 52 year old woman diagnosed with breast cancer presents with urinary frequency. Which part of the brain is the metastasis spread to?</p> <p>A. Brain stem</p> <p>B. Pons</p> <p>C. Medulla</p> <p>D. Diencephalon</p> <p>E. Cerebral cortex</p>
19.	<p>A 45 year old lady presents with diarrhea, vomiting, and severe abdominal pain. Examination reveals that her skin is hyperpigmented. Her blood pressure is 70/55 mmHg. What is the SINGLE most likely electrolyte abnormality to be found?</p> <p>A. Sodium 130 mmol/L, potassium 6.2 mmol/L</p> <p>B. Sodium 125 mmol/L, potassium 2.9 mmol/L</p> <p>C. Sodium 140 mmol/L, potassium 4.5 mmol/L</p> <p>D. Sodium 150 mmol/L, potassium 3.5 mmol/L</p> <p>E. Sodium 150 mmol/L, potassium 5.6 mmol/L</p>
20.	<p>A 40 year old man complains of thirst and lethargy. He has a blood pressure of 145/95 mmHg. His blood tests show:</p> <p>Serum calcium 3.5 mmol/l</p> <p>Serum potassium 4.5 mmol/l</p> <p>Serum sodium 149 mmol/l</p> <p>What is the SINGLE most appropriate initial management?</p> <p>A. IV fluids</p> <p>B. Calcitonin</p> <p>C. IV hydrocortisone</p> <p>D. Furosemide</p> <p>E. Cinacalcet hydrochloride</p>



21.	<p>A 27 year old woman presents with tremors, anxiety. She has a history of significant weight loss over the last 6 months. She has a heart rate of 112 beats/minute. Mild proptosis was seen on examination. What is the SINGLE most likely mechanism that accounts for her symptoms?</p> <p>A. Deficiency in thyroid hormone B. Increased level of calcitonin C. Increased metabolic rate D. Insulin resistance E. Reduced caloric intake</p>
22.	<p>A 32 year old man has paroxysmal hypertension. He has frequent headaches and complains of profuse sweating. His blood pressure remains high despite having started on an ACE inhibitor. What is the SINGLE most likely diagnosis?</p> <p>A. Hyperthyroidism B. Panic attacks C. Essential hypertension D. Pheochromocytoma E. Generalized anxiety disorder</p>
23.	<p>An 8 month old infant presents with failure to thrive and constipation. On examination, a protruding tongue and widely set eyes are observed. His father and older sister has a history of prolonged neonatal jaundice. What is the SINGLE most likely diagnosis?</p> <p>A. Down's syndrome B. Fragile X syndrome C. Prader Willi syndrome D. DiGeorge syndrome E. Congenital hypothyroidism</p>
24.	<p>A 44 year old woman has menstrual irregularities and unexplained milk discharge from her nipples. An MRI reveals a pituitary tumour. What is the SINGLE most likely visual abnormality associated with a pituitary tumour?</p> <p>A. Homonymous hemianopia B. Homonymous upper quadrantanopia C. Bitemporal hemianopia D. Cortical blindness E. Homonymous lower quadrantanopia</p>
25.	<p>A 35 year old man who is a known type 1 diabetic has abdominal pain with deep breathing and drowsiness. The nurse has said that his breath has a fruity smell. His mucous membranes look dry. A urine dipstick testing shows marked glycosuria and ketonuria. Plasma glucose was elevated. What is the SINGLE most appropriate immediate management?</p> <p>A. Intravenous fluids followed by insulin B. Intravenous dextrose</p>



	<p>C. Oral rehydration D. Subcutaneous insulin immediately E. Intravenous antibiotics</p>
26.	<p>A 43 year old man complains of thirst, lethargy and frequent urination. He was diagnosed with multiple myeloma. What is the SINGLE most likely biochemical abnormality to be associated with this condition?</p> <p>A. Hypercalcaemia B. Hyperkalaemia C. Hypernatraemia D. Hypocalcaemia E. Hypomagnesemia</p>
27.	<p>A 9 year old girl who is known to have type 1 diabetes mellitus presents with drowsiness and deep breathing. Her blood glucose is 18 mmol/L. She has a blood pressure of 120/80 mmHg and her mucous membranes are dry. What is the SINGLE most appropriate next step?</p> <p>A. Serum urea B. Blood culture C. Computed tomography D. HbA1c E. Arterial blood gas</p>
28.	<p>An 8 year old boy with a body mass index is 25 kg/m² was admitted to a surgical ward following a road traffic accident. He was found to have glycosuria. When he recovered from his injury the glycosuria resolved. What is the SINGLE most appropriate follow-up investigation?</p> <p>A. Fasting blood glucose B. Glycated haemoglobin (HbA1c) C. 24 hour urine cortisol D. Random blood glucose E. Serum cortisol levels</p>
29.	<p>A 55 year old man has weight loss, dyspnoea and syncope. He smokes 20 cigarettes/day. Investigations confirm squamous cell carcinoma in the left bronchus. What is the SINGLE most likely biochemical abnormality to be associated with this condition?</p> <p>A. Hypercalcaemia B. Hyperkalaemia C. Hypernatraemia D. Hypocalcaemia E. Hypomagnesemia</p>
30.	<p>A 55 year old man with a 4 year history feeling thirsty and urinating more often than usual presents with a deep painless ulcer on the heel. He also has a history of unexplained weight loss and feels tired all the time. What is the SINGLE most appropriate investigation?</p>



	<p>A. Arteriography B. Venography C. Blood sugar D. Biopsy for malignant melanoma E. Biopsy for pyoderma</p>
31.	<p>A 45 year old lady complains of galactorrhoea, decreased libido, amenorrhoea, weight gain, depression and fatigue. She also gives a history of constipation in the last 3 months. Her serum prolactin levels are 856 mU/L. What is the SINGLE most likely cause of her hyperprolactinaemia?</p> <p>A. Hypothyroidism B. Stress C. Pregnancy D. Prolactin secreting pituitary tumor E. Polycystic ovary syndrome</p>
32.	<p>A 35 year old man is feeling unwell after a recent myocardial infarction. A recent ECG of the patient shows widening of the QRS complex and tall-tented T wave. His recent blood results show:</p> <p>Sodium 136 mmol/L Potassium 6.2 mmol/L Urea 5 mmol/L Creatinine 90 μmol/L</p> <p>What is the SINGLE most appropriate management?</p> <p>A. Intravenous calcium gluconate B. Oral calcium resonium C. Oral calcium with vitamin D D. Intravenous sodium chloride E. Intravenous glucose</p>
33.	<p>A 55 year old woman has recently been diagnosed with type 2 diabetes mellitus. Her body mass index is 23 kg/m². Her last two random blood sugars that were taken were 8 and 7 mmol/l. Her blood pressure is 140/86 mmHg. Her total cholesterol is 4.7mmol/l. She has no symptoms but has microalbuminuria. What is the SINGLE most appropriate drug management?</p> <p>A. ACE inhibitors B. Calcium channel blockers C. Statin D. Statin and glibenclamide E. Beta-blockers</p>
34.	<p>An 18 year old man has extreme thirst and polyuria. 6 months ago he had a significant head injury as the result of a road traffic accident. A diagnosis of diabetes insipidus is suspected. What is the SINGLE most likely laboratory findings after fluid deprivation before the administration of desmopressin?</p>



	<p>(normal plasma osmolality 275-295 mosmol/kg and normal urine osmolality is 300-900 mosmol/kg)</p> <p>A. Plasma osmolality of 280 mosmol/kg and urine osmolality of 250 mosmol/kg B. Plasma osmolality of 300 mosmol/kg and urine osmolality of 350 mosmol/kg C. Plasma osmolality of 335 mosmol/kg and urine osmolality of 700 mosmol/kg D. Plasma osmolality of 280 mosmol/kg and urine osmolality of 700 mosmol/kg E. Plasma osmolality of 335 mosmol/kg and urine osmolality of 200 mosmol/kg</p>
35.	<p>A type 2 diabetes mellitus is undergoing a major surgery. He is on long acting insulin and gliclazide. What is the SINGLE most appropriate pre-op management?</p> <p>A. Start him in IV insulin and glucose and K+ just before surgery B. Stop his oral hypoglycaemics on the day of the procedure C. Continue regular oral hypoglycaemic D. Stop oral hypoglycaemic the night before surgery and start IV insulin sliding scale with glucose and K+ before surgery E. Change to short acting oral hypoglycaemic</p>
36.	<p>A 33 year old woman complains of tiredness, lethargy and constipation. On inspection, she has a dry coarse skin, hair loss and cold peripheries. What is the SINGLE most likely diagnosis?</p> <p>A. Hypothyroidism B. Hyperthyroidism C. Crohn's disease D. Addison's disease E. Irritable bowel syndrome</p>
37.	<p>A 36 year old male diagnosed with glioblastoma has been receiving dexamethasone for several months to treat cerebral oedema. He started having diarrhoea and vomiting for the last 3 days. He complains of abdominal pain. He feels dizzy when he gets up from bed or stands up from a chair. What is the SINGLE most likely reason for his symptoms?</p> <p>A. Adrenal insufficiency B. Dehydration C. Steroids side effects D. Raised intracranial pressure E. Cushing's disease</p>
38.	<p>A 31 year old man has profuse sweating, palpitations, headaches, flushing and hypertension. He was diagnosed with pheochromocytoma and is to have a surgical removal of the tumour in a week. What is the SINGLE most appropriate initial medication to prescribe?</p> <p>A. Tricyclic antidepressant B. Diazepam C. Diuretics D. Alpha-blocker</p>



	E. Beta-blocker
39.	<p>A 24 year old man is admitted to the emergency department with abdominal pain and vomiting. He is discovered to have diabetic ketoacidosis. What is the SINGLE most appropriate immediate management?</p> <p>A. Intravenous fluids and insulin infused continuously B. Intravenous dextrose C. Bolus of intravenous insulin D. Subcutaneous insulin immediately E. Intravenous antibiotics</p>
40.	<p>A 34 year old woman presents with truncal obesity, easy bruising, hyperglycemia and depression. She has a blood pressure of 165/95 mmHg. Which of the following investigations will be most helpful in localizing the cause of Cushing's syndrome?</p> <p>A. Serum cortisol B. 24-hour urinary free cortisol C. Low dose dexamethasone suppression test D. High dose dexamethasone suppression test E. Overnight dexamethasone suppression test</p>
41.	<p>A 12 year old boy is clinically obese and is the shortest in his class. His medical history includes having a renal transplant 2 years ago. There are purple striae noticed on his skin. What is the SINGLE most likely diagnosis?</p> <p>A. Cushing's syndrome B. Congenital hypothyroidism C. Pseudo-Cushing's syndrome D. Laurence–Moon syndrome E. Down syndrome</p>
42.	<p>A 9 year old boy had glycosuria following an appendectomy. He has no history of diabetes mellitus. A few days later, his glycosuria resolved. What is the SINGLE most appropriate follow-up investigation?</p> <p>A. Fasting blood glucose B. Glycated haemoglobin (HbA1c) C. 24 hour urine cortisol D. Random blood glucose E. Serum cortisol levels</p>
43.	<p>A 44 year old woman has recently undergone surgery for a fractured left hip. Her blood tests show a low serum calcium level, low serum phosphate level and raised alkaline phosphatase. What is the SINGLE most likely diagnosis?</p> <p>A. Paget's disease B. Osteoporosis</p>



	<p>C. Multiple myeloma D. Osteomalacia E. Rickets</p>
44.	<p>A 26 year old woman with diagnosed carcinoma of the bronchus has been receiving steroid treatment for the last several months. She started vomiting and having severe abdominal pain for the past 2 days. She also complains of sudden dizziness in the morning. What is the SINGLE most likely reason for her symptoms?</p> <p>A. Steroids side effects B. Metastasis of cancer C. Adrenal insufficiency D. Conn's disease E. Cushing's disease</p>
45.	<p>A 54 year old woman has presented with episodes of abdominal ache, vomiting and postural hypotension. She also has a dark pigmentation of her skin. A diagnosis of Addison's disease was made. What is the SINGLE most likely electrolyte abnormality expected in this patient?</p> <p>A. High sodium, Low potassium B. Low sodium, High potassium C. Low sodium, Low potassium D. High sodium, High potassium E. Low sodium, Normal potassium</p>
46.	<p>A 42 year old woman complains of tingling, numbness, paraesthesia, and involuntary spasm of the upper extremities. She has undergone a thyroidectomy for thyroid carcinoma a week ago. What is SINGLE most likely diagnosis?</p> <p>A. Thyroid storm B. Hyperparathyroidism C. Unilateral recurrent laryngeal nerve injury D. Hypokalaemia E. Hypocalcaemia</p>
47.	<p>A 35 year old woman presents with visual problems and amenorrhoea. An MRI reveals a pituitary tumour. What is the SINGLE most likely visual abnormality?</p> <p>A. Homonymous hemianopia B. Tunnel vision C. Bitemporal hemianopia D. Glares and halos E. Homonymous lower quadrantanopia</p>
48.	<p>A 39 year old woman has been feeling lethargic and tired. She has a blood pressure of 160/90 mmHg despite being on enalapril. Her blood test show:</p>



	<p>Haemoglobin 130 g/L Serum sodium 144 mmol/L Serum potassium 3.1 mmol/L</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Cushing's syndrome B. Conn's syndrome C. Hyperparathyroidism D. Renal disease E. Pheochromocytoma</p>
49.	<p>A 64 year old man with multiple myeloma has been vomiting for the past 2 days. His blood tests show:</p> <p>Serum calcium 3.2 mmol/l Serum potassium 5 mmol/l Serum sodium 149 mmol/l Packed cell volume 55%</p> <p>What is the SINGLE most appropriate next step?</p> <p>A. IV insulin B. IV calcium gluconate C. IV fluids D. IV bisphosphonates E. Oral bisphosphonates</p>
50.	<p>A 45 year old man presents with bitemporal hemianopia and swelling of his hands. He says that his nose has become larger and his voice has become more hoarse. On examination, spade-like hands are seen. What is the SINGLE most definitive test to confirm the diagnosis?</p> <p>A. Early morning growth hormone B. Prolactin level C. Oral glucose tolerance (OGTT) with serial growth hormone measurements D. Random insulin-like growth factor (IGF-1) E. Short synacthen test</p>
51.	<p>A 63 year old man who takes spironolactone and ramipril for hypertension and was found to have elevated potassium of 5.8mmol/L on routine blood test while on a day ward. He is otherwise well and has no allergies. An ECG is carried out which is normal. What is the SINGLE best initial treatment in light of his potassium levels?</p> <p>Normal Lab values</p> <p>Potassium 3.5–5 mmol/L</p>



	<p>A. Calcium gluconate IV B. Renal dialysis C. Stop spironolactone and ramipril D. Recheck potassium level E. IV insulin and glucose</p>
52.	<p>A 26 year old woman comes to the emergency department with vomiting, abdominal pain and tachypnoea. Her breath has a fruity smell. She has a heart rate of 99 beats/minute and a respiratory rate of 30 breaths/minute. Her blood pressure is 110/70 mmHg. Her blood and urine results show:</p> <p>Blood Ketones 3.3 mmol/L (high) Urine Ketones +++ Venous pH 7.2 (low) Blood Glucose 22 mmol/L (high)</p> <p>What is the SINGLE most appropriate immediate management?</p> <p>A. Intravenous fluids followed by insulin B. Intravenous dextrose C. Oral rehydration D. Subcutaneous insulin immediately E. Intravenous antibiotics</p>
53.	<p>A 19 year old man presents with weight loss, increasing thirst and increasing frequency of going to the washroom. His father, grandfather and his 2 sisters have been diagnosed with diabetes mellitus. What is the SINGLE most likely type of diabetes this man suffers from?</p> <p>A. Wolfram Syndrome B. Diabetes mellitus type 2 C. Latent autoimmune diabetes of adults (LADA) D. Maturity onset diabetes of the young E. Diabetic ketoacidosis</p>
54.	<p>A 58 year old woman has tiredness and diarrhoea for the last few weeks. She has noticed that her skin looks tanned. She describes dizziness on standing up and recently started feeling nauseous. What is the SINGLE most likely electrolyte abnormality to be found?</p> <p>A. Sodium 120 mmol/L, potassium 5.9 mmol/L B. Sodium 125 mmol/L, potassium 2.9 mmol/L C. Sodium 140 mmol/L, potassium 4.5 mmol/L D. Sodium 150 mmol/L, potassium 3.5 mmol/L E. Sodium 150 mmol/L, potassium 5.6 mmol/L</p>
55.	<p>A 45 year old man with diagnosed colon cancer develops increased thirst, and frequent urination. He is also noted to have been losing weight in the last couple of months. His blood test shows a fasting blood glucose of 9 mmol/L. He has a pulse of 70 beats/minute, a blood pressure of 125/80 mmHg and a respiratory rate of 18 breaths/minute. What is the SINGLE most appropriate management?</p>



	<p>A. Oral hypoglycaemic B. Long acting insulin C. Short acting insulin before meals D. IV insulin E. Subcutaneous insulin</p>
56.	<p>A newborn has congenital hypothyroidism. What feature might develop if no treatment is given?</p> <p>A. Microglossia B. Physiological jaundice C. Undescended testis D. Anal tags E. Left soft palate</p>
57.	<p>A 33 year old woman has amenorrhoea and galactorrhoea. An MRI shows a 9mm tumour in the pituitary fossa. What is SINGLE most appropriate management?</p> <p>A. Radiotherapy B. Cabergoline C. Craniotomy D. Transsphenoidal surgery E. Chemotherapy</p>
58.	<p>A 30 year old woman complains of decreased appetite and weight gain. She has been having irregular, infrequent periods in the last 10 months. She also feels tired and lethargic majority of the day. On inspection, she has a dry coarse skin. What is the SINGLE most likely diagnosis?</p> <p>A. Hypothyroidism B. Hyperthyroidism C. Polycystic ovary syndrome D. Addison's disease E. Premature ovary failure</p>
59.	<p>A 33 year old man has erectile dysfunction, decreased libido and galactorrhoea. What is the SINGLE most likely diagnosis?</p> <p>A. Hyperprolactinaemia B. Cushing's syndrome C. Pheochromocytoma D. Hyperthyroidism E. Hypoparathyroidism</p>
60.	<p>A 44 year old man is extremely thirsty despite excessive drinking. Diabetes mellitus and renal failure has been ruled out and a diagnosis of diabetes insipidus is suspected. Fluid deprivation test and an assessment of response to vasopressin was done which was consistent with central diabetes insipidus. What is the SINGLE most likely laboratory finding that lead to the conclusion?</p>



	<p>A. An increase in urine osmolality after administration of vasopressin B. A decrease in urine osmolality after administration of vasopressin C. An increase in plasma osmolality after administration of vasopressin D. A decrease in plasma osmolality during fluid deprivation E. An increase in urine osmolality during fluid deprivation</p>
61.	<p>A 38 year old lady was admitted with severe abdominal pain and diarrhoea. On examination, hyperpigmentation is noticed at the palmar creases and buccal mucosa. She has muscle cramps and joint pain. Her blood pressure is 79/50 mmHg. What is the SINGLE most likely diagnosis?</p> <p>A. Addison's disease B. Cushing syndrome C. Pheochromocytoma D. Hyperthyroidism E. Hypoparathyroidism</p>
62.	<p>A 46 year old woman complains of tiredness and lethargy. She has noticed a 8 kg weight gain in the last 3 months and is feeling more sensitivity to cold. She has a pulse rate of 55 beats/minute. What is the SINGLE most likely diagnosis?</p> <p>A. Hypothyroidism B. Hyperthyroidism C. Cushing's syndrome D. Addison's disease E. Pheochromocytoma</p>
63.	<p>A 49 year old man with a diagnosis of squamous cell carcinoma of the lung is confused and lethargic. He is continuously thirsty and urinates frequently. His blood tests show:</p> <p>Serum calcium 3.2 mmol/l Serum potassium 4.5 mmol/l Serum sodium 149 mmol/l</p> <p>What is the SINGLE most appropriate initial step?</p> <p>A. Calcitonin B. IV calcium gluconate C. IV 0.9% saline D. IV bisphosphonates E. Steroids</p>
64.	<p>A 34 year old woman is referred to the endocrine clinic with a history of thyrotoxicosis. At her first appointment she is found to have a smooth goiter, lid lag and bilateral exophthalmos with puffy eyelids. She wants to discuss the treatment of her thyroid problem as she is keen to become pregnant. What is the SINGLE most likely treatment to be given to her?</p>



	<p>A. Carbimazole alone B. Propylthiouracil alone C. A combination of carbimazole and thyroxine D. Radioactive iodine E. Thyroidectomy</p>
65.	<p>A 28 year old woman complains of tiredness, lethargy, and intolerance to cold. She has a history of Addison's disease. Her skin looks dry on examination. She has been having infrequent periods in the one year and her last menstrual period was 3 months ago. What is the SINGLE most likely diagnosis?</p> <p>A. Polycystic ovary syndrome B. Hyperthyroidism C. Hypothyroidism D. Addison's disease E. Premature ovary failure</p>
66.	<p>A 31 year old man has tremors, profuse sweating and palpitations. His blood pressure was measured at 160/115 mmHg but dropped to 139/92 on standing. What is the SINGLE most likely diagnosis?</p> <p>A. Hyperthyroidism B. Panic attacks C. Essential hypertension D. Pheochromocytoma E. Generalized anxiety disorder</p>
67.	<p>A 56 year old man was recently started on antihypertensive medication. His recent blood results show:</p> <p>Sodium 134 mmol/L Potassium 5.9 mmol/L Urea 7 mmol/L Creatinine 111 μmol/L</p> <p>What is the SINGLE most likely medication responsible for the abnormal results?</p> <p>A. Amlodipine B. Bendroflumethiazide C. Doxazosin D. Atenolol E. Ramipril</p>
68.	<p>A 39 year old man has galactorrhoea. On examination of his visual fields, a bitemporal hemianopia was noted. What is the SINGLE most likely diagnosis?</p> <p>A. Hyperprolactinaemia B. Cushing's syndrome C. Pheochromocytoma</p>



	D. Hyperthyroidism E. Hypoparathyroidism
69.	<p>A 29 year old male comes to clinic with a swollen, painful right wrist joints. On further questioning, he gives a history of noticing a change in his shoe size. His other complains also include constipation, feeling cold and needing more warm clothes to keep him warm. On examination, his skin is found to be dry and his right wrist is erythematous and tender to touch. What is the SINGLE most likely diagnosis?</p> <p>A. Chondrosarcoma B. Liposarcoma C. Gout D. Pseudogout E. Ankylosing spondylitis</p>
70.	<p>A 33 year old man comes to clinic to have an oral glucose tolerance test. What is the plasma glucose level two-hours after glucose intake which indicates an impaired glucose tolerance?</p> <p>A. >11.1 mmol/L B. >11.0 mmol/L C. Between 8.0-10.9 mmol/L D. Between 7.8-11.1 mmol/L E. Between 7.1-11.1 mmol/L</p>
71.	<p>A 35 year old man with a medical history of type 1 diabetes mellitus presents to the hospital with reduced conscious level and feeling unwell. He has dry mucous membranes and a slow capillary refill. He has a blood pressure of 80/50 mmHg and a pulse rate of 105 beats/minute. What is the SINGLE most appropriate initial investigation?</p> <p>A. Arterial blood gas B. Full blood count C. HbA1c D. Liver function tests E. Serum urea</p>
72.	<p>A 29 year old known diabetic man comes to A&E after falling down the stairs. While waiting in the waiting room, he becomes unconscious and collapses. What is the SINGLE most appropriate initial investigation?</p> <p>A. Computed tomography scan B. Random blood sugar C. Magnetic resonance imaging D. Electrocardiogram E. Arterial blood gas</p>



73.	<p>A 68 year old woman was diagnosed with Type 2 Diabetes Mellitus. Diet and lifestyle modifications have failed to control his blood sugar over the last three months. She has no known allergies and takes Ramipril 5mg daily. She has a body mass index is 35 kg/m². Her blood results are as follows:</p> <p>Serum urea 13.2 mmol/L Creatinine 390 mmol/L eGFR 25 ml/min</p> <p>What is the SINGLE most appropriate pharmacological management?</p> <p>A. Biguanide B. Sulfonylurea C. Insulin D. Glitazone E. Sodium glucose co-transporter 2 (SGLT2) inhibitors</p>
74.	<p>A 65 year old man with a body mass index is 33 kg/m² has been diagnosed with Type 2 diabetes mellitus. Diet and lifestyle modifications have failed to control his blood sugar over the last three months. He has no known allergies and does not take any regular medications. His blood results are as follows:</p> <p>Serum urea 3.6mmol/L Creatinine 82 mmol/L eGFR 79 ml/min</p> <p>What is the SINGLE most appropriate pharmacological management?</p> <p>A. Biguanide B. Sulfonylurea C. Sodium glucose co-transporter 2 (SGLT2) inhibitors D. Glitazone E. Incretin mimetics</p>
75.	<p>A 75 year old man with a recent diagnosis of prostate cancer has confusion, thirst, lower back pain and abdominal pain. An ECG was performed which showed shortening of QT interval. What is the SINGLE most appropriate investigation?</p> <p>A. Magnetic resonance imaging spine B. Radionuclide bone scan C. DEXA scan D. Serum alkaline phosphatase E. Serum calcium</p>
76.	<p>A 79 year old man has a diagnosis of lung cancer. He has a sodium level of 122 mmol/l but remains asymptomatic for hyponatraemia. What is the SINGLE most appropriate management?</p> <p>A. Demeclocycline</p>



	<p>B. Vasopressin C. Fluid restriction D. Reassure E. Tolvaptan</p>
77.	<p>A 32 year old man has recently had an appendectomy performed. His post-op blood results return with the following values:</p> <p>Glucose 4.5 mmol/L Sodium 129 mmol/L Potassium 5.3 mmol/L</p> <p>What is the SINGLE most appropriate management?</p> <p>A. Sodium chloride 0.9% intravenous infusion B. Sodium chloride 0.45% intravenous infusion C. Insulin-glucose intravenous infusion D. Nebulised salbutamol E. Sodium bicarbonate</p>
78.	<p>A 41 year old obese women has recently undergone a blood test. Her results show:</p> <p>Fasting blood sugar 6 mmol/l Oral glucose tolerance test 10.1 mmol/l.</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Impaired glucose tolerance B. Diabetes insipidus C. Type 1 diabetes mellitus D. Type 2 diabetes mellitus E. Maturity onset diabetes of the young</p>
79.	<p>A 21 year old man is brought into A&E semi-conscious by his friends. They were at a party and have been drinking alcohol when they found him unconscious in a corner. He is groaning and unable to give any information to the doctors. During the initial evaluation, his respiratory rate is 17/min and pulse rate is 88 bpm, BP is 110/70 mmHg, pupils are responsive. His Glasgow Coma Scale (GCS) score is 11/15. What is the SINGLE most appropriate next course of action?</p> <p>A. Computed tomography of head B. Magnetic resonance imaging of head C. Check blood glucose D. Check Body temperature E. Intravenous fluids</p>
80.	<p>A 22 year old footballer collapses during a game and is brought into A&E by ambulance. During the initial evaluation, his respiratory rate is 14/min and pulse rate is 84 bpm, BP is 115/80 mmHg. He is</p>



	<p>sweating profusely and muttering incomprehensible words. What is the SINGLE most appropriate next course of action?</p> <p>A. Computed tomography of head B. Magnetic resonance imaging of head C. Check blood glucose D. Intravenous insulin E. Intravenous fluids</p>
81.	<p>A 58 year old man who is known to have diabetes mellitus presents to the hospital with drowsiness, blurred vision, tremors, fatigue and confusion. On examination, he is excessive sweaty. Which SINGLE investigations should be done initially to help with further management?</p> <p>A. Fasting blood sugar B. Blood glucose C. Standing and lying blood pressure D. Electrocardiogram E. Computed tomography of head</p>
82.	<p>A 29 year old smoker presents with dry eyes and diplopia. On examination, she has lid lag and lid retraction bilaterally. What is the SINGLE most appropriate next step?</p> <p>A. Thyroid Function Tests B. Tensilon test C. Fundoscopy D. Autoantibodies E. Electromyography</p>
83.	<p>A 44 year old lady has just recovered from an upper respiratory tract infection. She feels her heart racing and has increased perspiration. Her blood tests show:</p> <p>Free thyroxine (T4) 48 pmol/L Free triiodothyronine (T3) 15 pmol/L Thyroid stimulating hormone (TSH) 0.1 mU/L Thyroid antibodies negative</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Hashimoto's thyroiditis B. Graves' disease C. Subacute thyroiditis D. Toxic nodular goitre E. Sick euthyroid syndrome</p>
84.	<p>A 4 year old child is brought to the emergency department by his mother with complains of vomiting for the past 4 days. On examination, he has clinical signs of mild to moderate dehydration. What is his arterial blood gas profile likely to show?</p>



	<p>A. A low pH and low PCO₂</p> <p>B. A low pH and high PCO₂</p> <p>C. A high pH and low PCO₂</p> <p>D. A high pH and high PCO₂</p> <p>E. A high pH and normal PCO₂</p>
85.	<p>A 62 year old man had a bowel resection 3 days ago for colorectal cancer. His urine output has been low since the procedure and he is now becoming breathless. He has a blood pressure of 130/95 mmHg. On auscultation, he has crackles at both lung bases and on palpation, he has sacral oedema. His blood tests show:</p> <p>Haemoglobin 109 g/L</p> <p>Serum urea 50.5 mmol/L</p> <p>Serum creatinine 603 µmol/L</p> <p>Serum potassium 6.72 mmol/l</p> <p>What is the SINGLE most appropriate immediate management?</p> <p>A. Bolus of 20 units of insulin</p> <p>B. Calcium resonium</p> <p>C. Sodium bicarbonate</p> <p>D. Intravenous fluid</p> <p>E. 10 units of insulin and 50 ml of 50% glucose infusion</p>



SAMPLE

Ear Nose Throat



1.	<p>A 25 year old woman complains of dizziness, nausea, and anxiety which keeps coming from time to time. She notices that the attacks are associated with sudden change in posture and these episodes last only a few seconds. What is the SINGLE most likely diagnosis?</p> <p>A. Panic disorder B. Carotid sinus syncope C. Benign paroxysmal positional vertigo D. Vertebrobasilar insufficiency E. Postural hypotension</p>
2.	<p>A 29 year old teacher had a respiratory infection for which she was prescribed antibiotics. A few days after she finished the antibiotic course, she rejoins school but she has a weak, altered voice which was not present previously. What is the SINGLE most appropriate diagnosis?</p> <p>A. Recurrent laryngeal nerve palsy B. Angioedema C. Laryngeal obstruction D. Laryngitis E. Functional dysphonia</p>
3.	<p>A 45 year old man presents with progressive hoarseness. He has swollen vocal cords. He has a body mass index is 34 kg/m² and he smokes 20 cigarettes a day. He also drinks 2 pints of beer a day. He has been suffering from heartburn since he was mid twenties. His diet involves eating large amounts of red meat. Investigations reveal that he has laryngeal cancer. What is the SINGLE most likely cause of his cancer?</p> <p>A. Diet B. High BMI C. Alcohol abuse D. Gastro-oesophageal reflux disease E. Smoking</p>



4.	<p>A 26 year old woman has become aware of an increasing right sided hearing loss since her last pregnancy. On otoscopy, her eardrums look normal. Her hearing tests shows bone conduction (BC) is better than air conduction (AC) in the right ear. Weber's test lateralizes to the right ear. What is the SINGLE most likely diagnosis?</p> <p>A. Encephalopathy B. Functional hearing loss C. Tympanosclerosis D. Otosclerosis E. Sensorineural deafness</p>
5.	<p>A 47 year old man has difficulty hearing on his right ear. Air conduction (AC) is better than bone conduction in both ears. The sound was localised towards the left side on Weber's test. What is the SINGLE most likely diagnosis?</p> <p>A. Right sensorineural deafness B. Left sensorineural deafness C. Right conductive deafness D. Left conductive deafness E. Bilateral sensorineural deafness</p>
6.	<p>A 15 year old boy injured his right ear during a rugby match. He reports pain around the right pinna. On examination, the pinna of the right ear is red and tender. The tympanic membrane was found to be normal. What is the SINGLE most appropriate next step?</p> <p>A. Topical gentamicin B. Oral flucloxacillin C. Intravenous flucloxacillin D. Refer to ENT specialist E. No further intervention needed</p>
7.	<p>A 30 year old woman presents with sudden onset of severe vertigo. She has a 4 week history of intermittent dizziness. These episodes typically occur when she suddenly moves her head or rolls in bed and are characterised by the sensation that the room is 'spinning'. Most attacks last a few seconds. Neurological examination is unremarkable. What is the SINGLE most likely diagnosis?</p> <p>A. Benign paroxysmal positional vertigo B. Meniere disease C. Postural hypotension D. Psychogenic vertigo E. Viral labyrinthitis</p>
8.	<p>A 37 year old man has unilateral hearing loss on the right with tinnitus and balance disturbances. He complains of a feeling that his ear is plugged. He is also noted to have impaired facial sensation on that same side, What is the SINGLE most appropriate investigations to perform?</p>



	<p>A. Audiometry B. Computed tomography of brain C. Magnetic resonance imaging of brain D. Tympanometry E. Weber's test</p>
9.	<p>A 4 year old girl has a painful right ear. She is irritable and has been crying and coughing. She has a temperature of 38.8°C. Otoscopy reveals bulging of the tympanic membrane which appears red. What is the SINGLE most likely diagnosis?</p> <p>A. Acute otitis media B. Herpetic infection of the ear C. Referred pain from teeth D. Perforation of the eardrum E. Otitis externa</p>
10.	<p>A 41 year old man presents with longstanding foul smelling brown ear discharge and progressive hearing loss of his right ear. The discharge has persisted despite three courses of antibiotic ear drops. Otoscopy shows perforation of the pars flaccida. A pearly white soft matter is seen at the posterior margin of the perforation. What is the SINGLE most likely diagnosis?</p> <p>A. Acute Suppurative Otitis Media B. Chronic Suppurative Otitis Media C. Acquired cholesteatoma D. Congenital cholesteatoma E. Barotrauma</p>
11.	<p>A 4 year old boy presents with fever, severe ear ache, and vomiting. Tonsillitis was noted on examination. Otoscopy reveals a red bulging tympanic membrane. What is the SINGLE most likely diagnosis?</p> <p>A. Otitis externa B. Acute otitis media C. Referred pain from teeth D. Chronic suppurative otitis media E. Mastoiditis</p>
12.	<p>A 11 year old girl presents to the clinic with hoarseness of voice. She is a known case of bronchial asthma and has been on oral steroids for half a year. What is the SINGLE most likely cause of her hoarseness of voice?</p> <p>A. Laryngeal candidiasis B. Infective tonsillitis C. Laryngeal edema D. Allergic drug reaction E. Ludwig's angina</p>



13.	<p>A 7 year old boy is brought to clinic by his mother. She says that he is always turning up the TV volume and she has to shout to get his attention. There has been recurrent ear infections in the past which was resolved by medication. On examination: a bulging drum is noticed. There is no pain or fever. What is the SINGLE most appropriate management?</p> <p>A. Grommet insertion B. Reassure and review in 3 months C. Hearing aids D. Adenoidectomy E. Antibiotics</p>
14.	<p>A 33 year old man comes to the clinic complaining of hearing loss in one ear. There is no earache, fever, vertigo or tinnitus. On inspection, a buildup of earwax is observed. What is the SINGLE most appropriate initial management?</p> <p>A. Olive oil ear drops B. ear irrigation C. Refer to an Ear Nose and Throat specialist for removal of wax D. Advise to keep ear dry E. Removal by cotton bud</p>
15.	<p>A 66 year old male presents with painful swallowing. He describes it as a burning sensation that radiates to the back everytime he swallows fluid or food. What is the SINGLE most likely causative organism?</p> <p>A. Neisseria meningitidis B. Cryptococcus neoformans C. Candida albicans D. Isospora belli E. Mycobacterium avium</p>
16.	<p>A 34 year old man presents with right sided facial pain felt as upper jaw pain and located at the skin of the right cheek. He gives a history of having a cold 3 days ago. He feels tenderness at the anterior wall below the inferior orbital margin. What is the SINGLE most likely diagnosis?</p> <p>A. Ethmoid sinusitis B. Maxillary sinusitis C. Septal haematoma D. Adenoiditis E. Allergic rhinitis</p>
17.	<p>A 6 year old girl has a left earache for 4 days. The earache then subsided 2 hours ago with the onset of a purulent discharge which relieved the pain. Her temperature is 39.2°C. What is the SINGLE most appropriate antibiotic to prescribe?</p> <p>A. Amoxicillin B. Ciprofloxacin</p>



	<p>C. Clindamycin D. Erythromycin E. Flucloxacillin</p>
18.	<p>A 5 year old child complains of sore throat and earache. He has a temperature of 38.6°C. Examination shows enlarged, hyperemic tonsils with pus. He is not on any medication. What is the SINGLE most likely diagnosis?</p> <p>A. Infectious mononucleosis B. Acute tonsillitis C. Scarlet fever D. Acute Epiglottitis E. Acute Otitis Media</p>
19.	<p>A 39 year old man has a history of swelling in the region of the submandibular region, which became more prominent and painful on chewing. He also gives a history of sour taste in the mouth and having a dry mouth. On palpation, the area is tender. What is the SINGLE most likely underlying diagnosis?</p> <p>A. Chronic sialadenitis B. Adenolymphoma C. Mikulicz's disease D. Adenoid cystic carcinoma E. Submandibular abscess</p>
20.	<p>A 30 year old lady has epistaxis for 30 minutes. Blood results shows:</p> <p>Haemoglobin 122 g/L White cell count 8 x 10⁹/L Platelets 200 x 10⁹/L Prothrombin time (PT), Activated partial thromboplastin time (APTT) and bleeding time is normal</p> <p>What is the SINGLE most likely cause of the bleed?</p> <p>A. Platelet disorder B. Clotting factor deficiency C. Sepsis D. Anatomical defect E. Warfarin use</p>
21.	<p>A 17 year old woman with no previous history of ear complains, presents with a one day history of severe pain in the right ear which is extremely tender to examine. There is pain with movement of the tragus. What is the SINGLE most likely diagnosis?</p> <p>A. Chondromalacia B. Furuncle C. Myringitis</p>



	D. Otitis externa E. Otitis media
22.	<p>A 5 year old girl has been reported by her parents to be increasing the volume of the television to an excessive level. A hearing test conducted at school shows a symmetric loss of 40db. A grey bulging drum is seen on otoscopy on both ears. What is the SINGLE most likely diagnosis?</p> <p>A. Otitis media with effusion B. Otitis externa C. Cholesteatoma D. Otosclerosis E. Congenital sensorineural deficit</p>
23.	<p>A 45 year old male presents with a whitish-grey opaque areas with red inflamed patches on his tongue. These patches are unable to be scraped off. What is the SINGLE most likely diagnosis?</p> <p>A. Kaposi's sarcoma B. Basal cell carcinoma C. Aphthous ulcer D. Oral thrush E. Leukoplakia</p>
24.	<p>A 48 year old man has a lump on his mandible. It has rapidly increased in size over the past 8 months. On examination, there is an induration of the skin overlying the mass. The mass is free and mobile. What is the SINGLE most appropriate investigations?</p> <p>A. Fine needle aspiration (FNA) cytology B. Computed tomography C. Salivary immunoglobulin M (IgM) D. Magnetic resonance imaging E. Erythrocyte sedimentation rate (ESR)</p>
25.	<p>An 8 year old boy was brought by his mother complaining that her child seems to be watching the television at very high volumes. He lacks concentration and is socially withdrawn. He would prefer to read books indoors rather than play outdoors. What is the SINGLE most likely finding to be expected on an otoscopy?</p> <p>A. Flamingo pink tympanic membrane B. Attic perforation C. A bluish grey tympanic membrane with an air fluid level D. Inflamed tympanic membrane with cart wheel appearance of vessels E. Red and inflamed tympanic membrane</p>
26.	<p>A 15 year old boy presents to A&E with a nose bleed. The bleeding started 3 hours ago and has not stopped. His blood pressure is 115/70 mmHg, heart rate is 80 bpm and respiratory rate is 18/min. What is the SINGLE most appropriate next course of action?</p>



	<p>A. IV fluids B. Lean forward, open mouth and pinch cartilaginous part of nose firmly C. Lean backwards, ice packs and pinch base of nose firmly D. Start IV tranexamic acid E. Radiological arterial embolization</p>
27.	<p>A 52 year old woman has intermittent vertigo, tinnitus and fluctuating hearing loss. She complains of a sensation of ear pressure. The attacks can last for 2 to 3 hours. A MRI brain scan was reported as normal. What is the SINGLE most appropriate treatment?</p> <p>Plab Lab Values</p> <p>A. Prochlorperazine B. Fluphenazine C. Vitamin A D. Gentamicin drops E. Aspirin</p>
28.	<p>An 8 year old boy who has recently returned from Spain complains of severe pain in one ear. On examination, pus is seen in the auditory canal. The tympanic membrane looks normal. What is the SINGLE most appropriate treatment?</p> <p>A. Topical gentamicin B. Amoxicillin PO C. Analgesia D. Amoxicillin IV E. Microsuction</p>
29.	<p>A 46 year old man has a long history of chronic sinusitis. He feels that his nose is blocked and it does not clear and he occasionally sees blood when he blows his nose. He now presents with pressure in his upper teeth, recent cheek swelling, and double vision. On examination, left maxillary tenderness is noted along with epiphora of the left eye. What is the SINGLE most likely diagnosis?</p> <p>A. Nasopharyngeal carcinoma B. Pharyngeal carcinoma C. Paranasal sinus carcinoma D. Laryngeal carcinoma E. Hypopharyngeal tumour</p>
30.	<p>A 29 year old man with a medical history that includes late onset asthma attends clinic with rhinorrhoea and bilateral painless nasal obstruction. He complains of reduce sense of smell. What is the SINGLE most likely diagnosis?</p> <p>A. Septal abscess B. Septal haematoma C. Nasal polyp D. Atrophic rhinitis E. Allergic rhinitis</p>



31.	<p>A 17 year old man presents with sore throat for several days and dysphagia. Examination reveals a unilateral bulge, above and lateral to his left tonsil. The bulge was noted to be red and inflamed. The examination of the oral cavity was proven to be difficult as he had mild trismus. Drooling of the saliva was seen. What is the SINGLE most appropriate management?</p> <p>A. Lymph node biopsy B. Intravenous antibiotic and analgesics C. Intravenous antibiotics, incision and drainage D. Excision biopsy of bulge E. Tonsillectomy</p>
32.	<p>A 10 year old boy presents to clinic with poor grades in school and difficulty in hearing. There has been recurrent ear infections in the past which was resolved by medication. On examination: bone conduction is normal, air conduction is reduced bilaterally, and there is no lateralization in the Weber's test. There is no pain. What is the SINGLE most likely diagnosis?</p> <p>A. Acute otitis media B. Perforation of tympanic membrane C. Otitis media with effusion D. Congenital sensorineural deficit E. Otosclerosis</p>
33.	<p>A 5 year old girl has had an upper respiratory tract infection for 3 days and has been treated with paracetamol by her mother. In the last 12 hours, she has been irritable and with severe pain in her right ear. She has a temperature of 38.3°C. What is the SINGLE most likely diagnosis?</p> <p>A. Herpes zoster infection B. Impacted ear wax C. Mumps D. Acute otitis media E. Perforation of eardrum</p>
34.	<p>A 40 year old man with a 25 year history of smoking presents with progressive hoarseness of voice, difficulty swallowing and episodes of haemoptysis. He mentioned that he used to be a regular cannabis user. What is the SINGLE most likely diagnosis?</p> <p>A. Nasopharyngeal cancer B. Pharyngeal carcinoma C. Sinus cancer D. Laryngeal cancer E. Hypopharyngeal tumour</p>
35.	<p>A 6 year old boy presents with a fever, sore throat and lymphadenopathy. The diagnosis of tonsillitis has been made. He had 3 similar episodes last year which were self limiting. What is the SINGLE most appropriate management for this child?</p>



	<p>A. Tonsillectomy B. Paracetamol C. Oral penicillin D. Oral amoxicillin E. Prophylactic low dose penicillin</p>
36.	<p>A 38 year old man was slapped over his right ear during a fight. There is blood coming from his right external auditory canal. He describes the pain as intense and he also has ringing in his ears. He is also noted to have decreased hearing on that ear. What is the SINGLE most appropriate initial investigation?</p> <p>A. Computed tomography B. Magnetic resonance imaging C. Otoscopy D. Skull X-ray E. Facial X-ray</p>
37.	<p>A 30 year old man was camping and an insect got stuck in his ear which he has been unable to remove. He complains that he can still hear the buzzing in the ear. On inspection, the insect is clearly visible in the ear canal. What is the SINGLE most appropriate initial management?</p> <p>A. 2% lidocaine B. Ear irrigation C. Refer to an Ear Nose and Throat specialist D. Reassure E. Removal by cotton bud</p>
38.	<p>A 6 year old child fell on his nose 3 days ago. His parents have now brought him to the hospital as he is having difficulty in breathing and feeling unwell. He has general malaise and complains of nasal pain. On examination, nasal bones are seen to be straight however there is tenderness over the dorsum of the nose. He has a temperature of 38.9°C. What is the SINGLE most likely diagnosis?</p> <p>A. Nasal polyp B. Nasal septal haematoma C. Nasal septal abscess D. Deviated nasal septum E. Fractured nose</p>
39.	<p>A mentally retarded 8 year old child puts a green pea in his ear while eating. Otoscopy shows a green coloured object in the ear canal. What is the SINGLE most appropriate approach to remove the green pea?</p> <p>A. By magnet B. Syringing C. Removal under general anaesthesia D. By hook E. By instilling olive oil</p>



40.	<p>A 33 year old patient has sensorineural hearing loss and loss of corneal reflex on the left side. He is noted to have reduced facial sensation on that same side. He also complains of tinnitus and vertigo. What is the SINGLE most definitive investigation?</p> <p>A. Computed tomography of internal auditory meatus B. Nuclear imaging of brain C. Magnetic resonance imaging of internal auditory meatus D. Radioisotope scan E. X-ray skull</p>
41.	<p>A 28 year old man has a headache that worsens on bending his head forward. He has no nausea or vomiting. The headache tends to be at its worst first thing in the morning and improves by the afternoon. What is the SINGLE most likely diagnosis?</p> <p>A. Chronic sinusitis B. Trigeminal neuralgia C. Migraine D. Cluster headache E. Tension headache</p>
42.	<p>A 45 year old man presents with hearing loss and tinnitus in the right ear. A 512 Hz tuning fork is used which highlights Rinne's test having AC > BC bilaterally. Weber test lateralizes to the left. What is the SINGLE next best investigation?</p> <p>A. Computed tomography B. Magnetic resonance imaging C. Angiogram D. Otoscopy E. Oto-acoustic emissions</p>
43.	<p>A 2 year old child is brought by his mother. The mother had hearing impairment in her early childhood and is now concerned about the child having a similar condition. What is the SINGLE best investigation to be done for the child?</p> <p>A. Conditioned response audiometry B. Distraction testing C. Scratch test D. Tuning fork E. Otoacoustic emissions</p>
44.	<p>A 33 year old tennis player has to stop playing tennis competitively because she has recurrent vertigo attacks every time she plays tennis. The vertigo attacks started after a history of runny nose, cough and fever. Her hearing is not affected. What is the SINGLE most likely diagnosis?</p> <p>A. Acoustic neuroma B. Meniere's disease</p>



	<p>C. Labyrinthitis D. Benign paroxysmal positional vertigo E. Vestibular neuritis</p>
45.	<p>A 44 year old man presents with muffled hearing and tinnitus. He also complains of the feeling of pressure in ear and vertigo. He has double vision when looking to the right. What is the SINGLE most likely diagnosis?</p> <p>A. Meniere's disease B. Acoustic neuroma C. Acute labyrinthitis D. Meningioma E. Otosclerosis</p>
46.	<p>A 7 year old boy is brought to clinic by his mother. His mother complains that he has been getting in trouble in school because he is inattentive in class. The mother also mentions that he sits close to the television at home. These problems have been going on for more than 12 months. There is no pain or fever. A tympanogram highlights conductive hearing loss at 30-dB. What is the SINGLE most appropriate management?</p> <p>A. Grommet insertion B. Reassure and review in 3 months C. Hearing aids D. Adenoidectomy E. Refer to child psychologist</p>
47.	<p>A 6 year old boy was was playing in the playground when he stuck a seed into his ear. He has been unable to remove it. On inspection, the seed is clearly visible in the ear canal. What is the SINGLE most appropriate management?</p> <p>A. 2% lidocaine B. Ear irrigation C. Refer to an Ear Nose and Throat specialist D. Suction with a small catheter E. Removal by cotton bud</p>
48.	<p>A 62 year old man with a long history of smoking and alcohol presents with nasal obstruction, and on and off nose bleeds. He has a noticeable lump on his upper neck. He is having difficulty hearing with his left ear and has had worsening ear pain in that ear. Examination reveals conductive hearing loss in the left ear. What is the SINGLE most likely diagnosis?</p> <p>A. Nasopharyngeal carcinoma B. Paranasal sinus carcinoma C. Oesophageal carcinoma D. Oropharyngeal carcinomas E. Hypopharyngeal carcinoma</p>



49.	<p>A 9 year old girl has been increasing the volume of the television to an excessive level. Her parents complain that she needs them to repeat themselves constantly. On examination: bone conduction is normal, air conduction is reduced bilaterally. What is the SINGLE most likely diagnosis?</p> <p>A. Perforation of tympanic membrane B. Otitis media with effusion C. Congenital sensorineural deficit D. Otosclerosis E. Presbycusis</p>
50.	<p>A 10 year old boy presents to his GP with a nose bleed. The bleeding started 1 hour ago and has not stopped. He is haemodynamically stable. What is the SINGLE most appropriate next course of action?</p> <p>A. Press the base of the nose B. Press the soft parts of the nose C. Ice packs and lean backwards D. Start oral tranexamic acid E. Send to A&E</p>
51.	<p>A 45 year old woman presents with rotational vertigo, nausea and vomiting which is worst when moving her head. She also had a similar episode 2 years ago. These episodes typically follow an event of runny nose, cough and fever. What is the SINGLE most likely diagnosis?</p> <p>A. Acoustic neuroma B. Meniere's disease C. Labyrinthitis D. Benign paroxysmal positional vertigo E. Vestibular neuronitis</p>
52.	<p>A 9 year old girl has been referred for assessment of hearing as she is finding difficulty in hearing her teacher in the class. Her hearing tests show that bone conduction is normal and symmetrical air conduction threshold is reduced bilaterally. Weber test does not lateralize. What is the SINGLE most likely diagnosis?</p> <p>A. Perforation of tympanic membrane B. Otitis media with effusion C. Congenital sensorineural deficit D. Otosclerosis E. Presbycusis</p>
53.	<p>A 28 year old woman complains of vertigo and nausea that last around 30 minutes several times a year. She has mild hearing loss in the left ear. A diagnosis of Meniere's disease is made. What is the SINGLE most appropriate treatment?</p> <p>A. Aspirin B. Metoclopramide</p>



	<p>C. Cyclizine D. Clotrimazole E. Ondansetron</p>
54.	<p>A 16 year old female presents with a midline lump on her neck. It is painless and smooth. The swelling tends to move upwards when she protrudes her tongue. What is the SINGLE most likely diagnosis?</p> <p>A. Thyroglossal cyst B. Goitre C. Pharyngeal Pouch D. Thyroid cancer E. Lipoma</p>
55.	<p>A 75 year old man presents with symptoms of progressive sensorineural hearing loss on the right. He also complains of dizziness and tinnitus. What is the SINGLE most appropriate investigation?</p> <p>A. Computed tomography of internal auditory meatus B. Nuclear imaging of brain C. Magnetic resonance imaging of internal auditory meatus D. Ultrasound scan and fine needle aspiration E. X-ray skull</p>
56.	<p>A 6 year old boy was was playing at home alone when he stuck super glue into his ear. His mother has brought him to A&E and is extremely concerned. On inspection, the adhesive is in contact with the tympanic membrane. What is the SINGLE most appropriate management?</p> <p>A. Reassure B. Ear irrigation C. Refer to an Ear Nose and Throat specialist D. Suction with a small catheter E. Manual removal immediately</p>
57.	<p>A 12 year old boy presents with right sided hearing loss and facial drooping on the right side. He has a headache and feels dizzy. On examination, both ears appear normal with an intact eardrum. Rinne's test was found to be normal. Weber test lateralized to the left. What is the SINGLE most likely diagnosis?</p> <p>A. Bell's palsy B. Lyme disease C. Acoustic neuroma D. Pituitary adenoma E. Glioma</p>
58.	<p>A 35 year old woman has dull pain in her right ear which has been present for several weeks. The pain is located in front of the tragus of the right ear and spreads along the cheek and mandible. Chewing increases the pain. Her husband has mentioned that she grinds her teeth when she sleeps</p>



	<p>at night. The eardrum appears normal and there is no discharge. What is the SINGLE most likely diagnosis?</p> <p>A. Dental caries B. Mumps C. Otitis media D. Temporomandibular joint disorder E. Trigeminal neuralgia</p>
59.	<p>A 44 year old man has difficulty hearing on his right ear. Rinne's test was done and it was normal in both ears however Weber's test lateralized to the left ear. What is the SINGLE most likely diagnosis?</p> <p>A. Right sensorineural deafness B. Left sensorineural deafness C. Right conductive deafness D. Left conductive deafness E. Bilateral sensorineural deafness</p>
60.	<p>A 48 year old man has difficulty hearing. Bone conduction is better than air conduction in the left ear. The sound was localised towards the left side on Weber's test. What is the SINGLE most likely diagnosis?</p> <p>A. Right sensorineural deafness B. Left sensorineural deafness C. Right conductive deafness D. Left conductive deafness E. Bilateral conductive deafness</p>
61.	<p>A 45 year old man has noticed difficulty hearing over the telephone. His hearing has been progressively getting worse over the last few years. He is concerned because his father has had similar problems around his age. Rine's and Weber's test demonstrate conductive hearing loss. An audiogram shows moderate hearing loss in both ears across all frequencies. What is the SINGLE most likely diagnosis?</p> <p>A. Acoustic neuroma B. Meniere's' disease C. Glue ear D. Otosclerosis E. Presbycusis</p>
62.	<p>A 10 year old child developed fever, severe earache and tonsillitis following an upper respiratory tract infection. On otoscopy, the tympanic membrane is distinctly red. What is the most likely diagnosis?</p> <p>A. Acute Otitis Media B. Otitis Externa C. Glue Ear</p>



	D. Meningitis E. Vestibular Neuritis
63.	<p>A 6 year old down syndrome boy was was playing at home alone when he stuck a small piece of toy into his ear. His mother has brought him to a GP clinic and is extremely concerned. On inspection, a small foreign object is visible. The child is uncooperative and does not understand why his mother has brought him here. What is the SINGLE most appropriate management?</p> <p>A. Olive oil ear drops B. Ear irrigation C. Refer to an Ear Nose and Throat specialist D. Suction with a small catheter E. Manual removal immediately using forceps</p>
64.	<p>A 25 year old man presents with a history of pain and swelling in the submandibular region that has been present for weeks. The pain is unilateral and more prominent during eating. The area is tender on palpation. What is the SINGLE most likely diagnosis?</p> <p>A. Chronic sialadenitis B. Adenolymphoma C. Mikulicz's disease D. Adenoid cystic carcinoma E. Salivary gland neoplasm</p>
65.	<p>A 27 year old man had a fly enter his ear. He is anxious to get the fly removed. What is the SINGLE best method for removal of the fly from his ear?</p> <p>A. Removal with forceps B. Removal under general anaesthesia C. Instill mineral oil into his ear D. Instill alcohol ear drops E. Syringe his ear with normal saline</p>
66.	<p>A 52 year old patient is complaining of vertigo whenever she moves sideways on the bed while lying supine. She would feel as if the room is spinning and she would feel nauseous. This goes away after a few minutes but returns when she moves her head. What is the SINGLE most appropriate next step in management?</p> <p>A. Hallpike's Manoeuvre B. Reassure C. Advice on posture D. Carotid Doppler E. CT head</p>
67.	<p>A 55 year old man presents with swelling at the angle of the mandible which is progressively increasing in size over the past 6 months. It is painless, firm and mobile. What is the SINGLE most likely diagnosis?</p>



	<p>A. Benign parotid tumour B. Mandible tumour C. Tonsillar carcinoma D. Parotitis E. Sjögren's syndrome</p>
68.	<p>A 52 year old male with poorly controlled diabetes mellitus presents to his GP with severe pain in the ear and an intense headache. On examination, his skin around the ear is black in colour and there is a foul smelling discharge coming from the ear. He is also noted to have conductive hearing loss. What is the SINGLE most likely diagnosis?</p> <p>A. Carbuncle B. Folliculitis C. Malignant otitis externa D. Cholesteatoma E. Furuncle</p>

SAMPLE



SAMPLE

ETHICS



1.	<p>A 15 year old girl comes requesting the oral contraceptive pill (OCP). She is sexually active and her sexual partner is also 15 years old. She does not want her parents to know about her sexual relationship with this boy. What is the SINGLE most appropriate action?</p> <p>A. Breach confidentiality and inform her parents B. Advise her about safe sex and prescribe OCP C. Inform her that it is illegal for her to have a sexual relationship with a 15 year old boy D. Contact the police and local safeguarding officer E. Inform her that it is illegal to prescribe the pill for her</p>
2.	<p>A 15 year old girl is requesting for oral contraceptive pills (OCP) as she is sexually active. She refuses to tell her parents about her sexual activity and mentions that her partner is a 38 year old man. What is the SINGLE most appropriate action?</p> <p>A. Breach confidentiality and inform authorities B. Advise them about safe sex and prescribe the pill C. Perform an STI screen D. Inform her that she can only be prescribed the pill after the age of 16 E. Inform her that she can only be prescribed the pill after the age of 18</p>
3.	<p>A 15 year old boy in London is brought to the hospital by his parents complaining of lower abdominal pains for the past three days. A clinical suspicion of appendicitis and the decision to admit was made. The young boy refuses to be admitted as he has plans to go out with his friends tonight. He is unable to understand the serious nature of an untreated appendicitis. His parents would like to overrule his wishes and to admit him. What is the SINGLE most appropriate course of action?</p> <p>A. Contact the local safeguarding officer B. Respect his wishes and do not admit C. Involve social services D. Refer for a psychiatric evaluation before admission E. Admit him under parental consent</p>



4.	<p>A 15 year old girl attends the emergency department with mild vaginal bleeding. A pregnancy test is positive. She does not want her parents to know about her pregnancy and she refuses to disclose any information regarding her sexual partner to the healthcare professionals. What is the SINGLE most appropriate management?</p> <p>A. Assess child's competency to make decisions B. Inform her parents C. Involve social services D. Inform patient that she is lawfully obliged to provide her partner's name and age E. Contact the police</p>
5.	<p>A 34 year old woman requests for sterilization. Her last born child has cerebral palsy. Her husband strongly objects to the procedure. What is the SINGLE most appropriate action?</p> <p>A. Provide advice for other modes of contraception B. Proceed with patient wishes and carry out sterilization C. Seek judicial review instructions D. Referral to social services E. No action taken</p>
6.	<p>A 13 year old girl presents to the clinic requesting morning pills. She says the condom she used with her 13 year old boyfriend split into two while having intercourse. What is the SINGLE most appropriate action?</p> <p>A. Inform the police and then give patient contraception B. Inform patient's General Practitioner C. Inform patient's mother and the police immediately D. Give contraception E. Refer patient to another doctor to handle the case</p>
7.	<p>A healthy 19 year old female, gestational age of 27 weeks, presents to Obstetrics and Gynecology clinic requesting a termination. She says her boyfriend has just left her and that she would not want the baby to remind her of him. The boyfriend, who is currently in jail, has reportedly been assaulting her during their stormy 2 year relationship. What is the SINGLE most appropriate action?</p> <p>A. Terminate fetus via conservative management B. Terminate fetus via dilation and curettage C. Inform police and terminate fetus D. Refusal of termination E. Refusal of termination and inform police</p>
8.	<p>A 30 year old female is brought into the Emergency Department by her husband drifting in and out of consciousness following a road traffic accident. She is in shock and requires immediate blood transfusion. Her husband objects saying they are devout Jehovah's Witnesses and are against blood transfusion. Her condition is deteriorating. What is the SINGLE most appropriate action?</p> <p>A. Do not transfuse blood because there is no consent</p>



	<p>B. Transfuse blood without consent C. Inform health authorities as situation is complicated D. Seek judicial review instructions E. Consult social services</p>
9.	<p>A 31 year old Jehovah's Witness was in a car accident and brought into the emergency department. He has lost a massive amount of blood. He is given IV fluids. He is in critical condition and blood products are needed but he refuses any form of blood products due to his religious beliefs. What is the SINGLE most appropriate next step?</p> <p>A. Transfuse blood against his will B. Respect his decision and do not transfuse blood C. Contact the police D. Involve social services E. Seek legal advice</p>
10.	<p>A 17 year old boy is brought into the Emergency Department unconscious following a road traffic accident. What is the SINGLE most appropriate action?</p> <p>A. Resuscitate without consent B. Wait for relatives to consent before beginning resuscitation C. Inform health authorities as situation is complicated D. Seek judicial review instructions E. No action taken</p>
11.	<p>A 16 year old boy has lower abdominal pain. A clinical suspicion of acute appendicitis was made and the surgical team has decided to go ahead with an appendectomy. The patient is happy to go ahead with the surgery but his parents refuse to sign the consent form as they are opposed to any form of surgery. The procedure has been explained clearly to the patient and his parents and they understand the risk of not going for surgery. What is the SINGLE most appropriate action?</p> <p>A. Cancel the surgery once proper documentation by parents are filled B. Obtain a consent from patient and proceed with surgery C. Contact the local safeguarding officer D. Involve social services E. Contact the police</p>
12.	<p>A 30 year old man is found to be HIV positive and is against condom use. After discussing with him, he is still refusing to accept the need to tell his wife of his diagnosis. What is the SINGLE most appropriate action</p> <p>A. Inform the police B. Do not inform the police C. Inform health authorities D. Consult with social services E. Notify wife via partner notification programme</p>



13.	<p>You are treating a general surgeon for Hepatitis B. You ask him to inform the NHS trust where he is currently working and he refuses. What is the SINGLE most appropriate action?</p> <p>A. Respect the patient's confidentiality and do not inform the health authorities B. Inform the health minister C. Inform the relevant health authorities D. Seek judicial review instructions E. Try to convince patient and ask for consent again</p>
14.	<p>A 37 year old female who was recently diagnosed with multiple sclerosis took 100 tricyclic antidepressant tablets. She is now refusing all treatment. What is the SINGLE most appropriate action?</p> <p>A. Immediate arterial-blood gas analysis B. Observe C. Activated charcoal D. IV sodium bicarbonate E. Refer to psychiatrist to evaluate capacity</p>
15.	<p>A 45 year old man is found to be HIV positive in a Genitourinary Medicine clinic. He is not sexually active. He does not want his GP informed about his diagnosis as he has witnessed a friend who suffered discrimination following accidental disclosure of his HIV status. What is the SINGLE most appropriate action?</p> <p>A. Accept patient's decision not to inform GP B. Explain the legal and ethical duties of confidentiality to the patient and inform his GP C. Explain to the patient that it is the patient's duty by law to inform his GP D. Inform his GP when his viral load is below 500 copies/mL E. Inform his GP only when anti-viral medications are started</p>
16.	<p>A 15 year old girl comes in with her 15 year old boyfriend requesting for oral contraceptive pills (OCP). They are sexually active. They could not be persuaded to inform their parents about their sexual relationship or that contraceptive advice was being sought. What is the SINGLE most appropriate action?</p> <p>A. Breach confidentiality and inform parents B. Advise them about safe sex and prescribe the pill C. Contact the police and local safeguarding officer D. Inform her that she can only be prescribed the pill after the age of 16 E. Inform her that she can only be prescribed the pill after the age of 18</p>
17.	<p>An armed robber is injured during an exchange of gunfire with the police and comes to the Emergency Department. He requests your silence. What is the SINGLE most appropriate action?</p> <p>A. Inform the police without revealing patient's personal information B. Do not inform the police C. Consult with seniors of the NHS trust</p>



	<p>D. Consult with social services E. Inform the health minister</p>
18.	<p>A 34 year old man with multiple sclerosis has taken an overdose of more than 50 tablets of paracetamol with the intent to end his life. He has been brought to the emergency department by his wife. He is refusing all interventions. What is the SINGLE most appropriate action?</p> <p>A. Assess his glasgow coma scale B. Evaluate his mental capacity to refuse treatment C. Establish if patient has any previous mental illness D. Attain consent from his wife to give treatment E. Admit but do not provide any intervention</p>
19.	<p>A 15 year old girl is brought to the hospital by her parents with mild lower abdominal pain. An ultrasound scan reveals a large ovarian cyst. The decision for a laparoscopic ovarian cystectomy has been made but she refuses treatment. She understands the consequences of not having the surgery and is deemed competent. Her parents ask if they can override her decision and sign the consent form on her behalf. What is the SINGLE most appropriate action?</p> <p>A. Seek legal advice B. Obtain a consent from parents and carry out the surgery C. Obtain a consent from two consultant gynaecologist and carry out the surgery D. Contact social services E. Cancel the surgery and respect patient's wishes</p>
20.	<p>An 85 year old woman with Alzheimer's disease wants to change her will. Her granddaughter is refusing as she says that her grandmother does not know what she is saying since she is suffering from dementia. What is the SINGLE best action for you to take?</p> <p>A. Allow her to change her will B. Refuse her as she has no capacity C. Refer for assessment of capacity D. Her granddaughter is her caretaker and therefore can consent for her E. Allow her to change her will after 3 months</p>
21.	<p>A 49 year old HIV positive man has been responding well to Highly Active Antiretroviral Therapy (HAART) which he obtains from the Genitourinary Medicine clinic. He is due for an elective orthopaedic surgery. He has not disclosed his HIV status to the orthopaedic surgeon and wishes that his HIV status remains undisclosed. What is the SINGLE most appropriate action in regards to his HIV status?</p> <p>A. Accept patient's decision not to inform the orthopaedic surgeon about his HIV status B. Inform the orthopaedic surgeon about his HIV status C. Inform the orthopaedic surgeon that a patient with a blood blood-borne virus is booked in for surgery on the day, without disclosing patient's identity D. Inform his orthopaedic surgeon if his viral load is below 500 copies/mL E. Explain to the patient that it is the patient's duty by law to inform his surgeon</p>



22.	<p>A mother brings her 12 year old son to you requesting surgery for his sticking out ears. She says that he is constantly teased in school because of his ears and wants him to undergo cosmetic surgery for it. The boy says he does not want surgery. What is the SINGLE most appropriate action?</p> <p>A. Refer to private practice B. Schedule surgery as his consent is not needed C. Contact social services and explore their concerns D. Explain to mother that surgery is not possible without her son's consent E. Discuss the situation with your colleagues</p>
23.	<p>You are a junior doctor working in the NHS. You suspect one of your colleagues to be under the influence of recreational drugs. What is the SINGLE most appropriate action to be taken?</p> <p>A. Inform police B. Confront your colleague directly C. Inform the senior consultant D. Seek for more evidence first E. Report to the trust manager</p>
24.	<p>You are the SHO in psychiatry. Your consultant is having a sexual relationship with a widowed patient that is currently being treated for depression. The lady's condition is much improved and is awaiting discharge next week. What is the SINGLE most appropriate action?</p> <p>A. Inform health minister as situation is complicated B. Inform police and then give her contraception C. Report him to trust manager as per hospital protocol D. Inform the patient's family members E. Do not take action</p>
25.	<p>A 55 year old woman has recently been diagnosed with multiple sclerosis and has been started on oral steroids. She is brought to the hospital after having ingested more than 40 tablets of paracetamol 3 hours ago. She is refusing all medical treatment as she wants to end her life. What is the SINGLE most appropriate action?</p> <p>A. Admit and observe but do not provide any intervention B. Refer to psychiatrist to assess patients ability to refuse treatment C. Gastric lavage D. Activated charcoal E. Refer to social worker</p>
26.	<p>A man with dementia has an ulcerative lesion on his forehead. He wants it removed so 'it can help improve his memory'. His wife says he is not fit to give consent. What is the SINGLE most appropriate action?</p> <p>A. Remove the lesion after obtaining written consent from the patient B. Document finding but do not remove lesion</p>



	<p>C. Refer to GP for further assessment of lesion</p> <p>D. Refer to psychiatrist to assess the mental capacity to give consent</p> <p>E. Review in 6 weeks</p>
27.	<p>A 15 year old girl had unprotected sex with her 38 year old boyfriend and is now requesting for the morning pill. What is the SINGLE most appropriate action?</p> <p>A. Inform the police and give contraception</p> <p>B. Do not inform police and give contraception</p> <p>C. Inform parents and give contraception with their consent</p> <p>D. Do not inform parents and give contraception</p> <p>E. Consult with social services</p>
28.	<p>A 33 year old pregnant woman is in labour at 40 weeks gestation. The emergency bell was rung by the midwife in the labour room as the cardiotocograph shows fetal bradycardia for the past 5 minutes that has not recovered. A quick decision to go for an emergency C-section is made however she is unable to consent as she speaks only Tigrinya and cannot understand English. Her partner is not in the hospital with her. Attempts have been made to contact the language line but at present they are unable to obtain a Tigrinya translator. What is the SINGLE most appropriate action?</p> <p>A. Wait until a translator becomes available before performing the C-section</p> <p>B. Proceed to perform a C-section</p> <p>C. Seek legal advice</p> <p>D. Contact next of kin by telephone</p> <p>E. Do not proceed with C-section until patient can fully understand and signs consent form written in Tigrinya language</p>
29.	<p>A 32 year old woman is brought in unconscious by the ambulance after receiving the news that she has terminal breast cancer earlier in the day. She is suspected of having taken an overdose of benzodiazepines. She was found by her boyfriend with an empty bottle of tablets beside her with a note declaring that she wishes to end her life. The note specifically says that she does not want any treatment. What is the SINGLE most appropriate action?</p> <p>A. Respect her wishes and do not treat</p> <p>B. Wait for consciousness to obtain consent for treatment</p> <p>C. Obtain verbal consent from her boyfriend regarding the decision to treat</p> <p>D. Treat her with attempts to save her live despite not having a consent</p> <p>E. Contact her parents to obtain consent to treat</p>
30.	<p>A 33 year old man is brought into the Emergency Department having been involved in a fight outside a local pub. During the fight, he was hit on the head by a metal chair. On examination, there is a open laceration on his head and he has sustained cuts and bruises on his arms and legs. He also smells of alcohol. He was initially uncooperative before losing consciousness. What is the SINGLE most appropriate action?</p> <p>A. Proceed to investigate and treat the patient without his consent</p>



	<p>B. Wait till he regains consciousness to obtain consent</p> <p>C. Investigate only without treating the patient</p> <p>D. Treat only if his observations are unstable</p> <p>E. Seek legal advice</p>
31.	<p>A 33 year old man is extremely thankful for your service and for assisting in his laparoscopic appendicectomy. He offers you a valuable clock as a gift. What is the SINGLE most appropriate action?</p> <p>A. Accept it with gratitude</p> <p>B. Accept it with a condition that it will be sold and money used on improvements of services in the ward</p> <p>C. Ask him to donate it to the ward</p> <p>D. Refuse the gift and inform him that doctors are unable to accept valuable gifts from patients</p> <p>E. Accept it and donate it to charity</p>
32.	<p>A 48 year old man recently had a transient ischaemic attack. What advice on driving would you give him?</p> <p>A. Continue to drive only when accompanied by another person</p> <p>B. Continue to drive without any restrictions</p> <p>C. Drive on the familiar roads and avoid busy roads</p> <p>D. Stop driving completely</p> <p>E. Do not drive for at least one month</p>
33.	<p>A 14 year old girl presents to the clinic requesting oral contraceptives. She is sexually active with her 15 year old partner. What is the SINGLE most appropriate action?</p> <p>A. Inform the police</p> <p>B. Refer to social services</p> <p>C. Consult another doctor as you need a second opinion to prescribe oral contraceptives</p> <p>D. Prescribe oral contraceptive pills and advise her to involve her parents in her decision</p> <p>E. Assess both her mental capacity and her partner's mental capacity</p>
34.	<p>You are a junior doctor eating with a few friends in a restaurant. On leaving the restaurant, you notice an empty table with patient's medical notes. The table has been unattended for a while. What is the SINGLE most appropriate action?</p> <p>A. Request that the restaurant manager call the hospital</p> <p>B. Look through the medical notes and attempt to phone the patient</p> <p>C. Look through the medical notes for a general practitioners contact and inform the practice</p> <p>D. Take the medical notes to the hospital</p> <p>E. Ignore the incident and walk out of the restaurant</p>



SAMPLE

GASTROENTEROLOGY



1.	<p>A 23 year old female presents with an 8 week history of bloody diarrhoea. She says her bowels have not been right for the past few months and she frequently has to run to the toilet. A diagnosis of ulcerative colitis is made. What is the SINGLE most likely sign to be seen on a barium enema?</p> <p>A. Loss of haustral markings B. Kantor's string sign C. Cobblestone appearance D. Rose thorn ulcers E. Fistula</p>
2.	<p>A 42 year old man with type 2 diabetes presents with fatigue and shortness of breath. He is noted to have a bronze tinge to his skin. Abdominal examination reveals hepatomegaly. His blood test show a high ferritin level. A diagnosis has been made but he is refusing all treatment. Which organ is the most likely to be at risk of developing cancer?</p> <p>A. Testes B. Adrenal gland C. Liver D. Pancreas E. Heart</p>
3.	<p>A 28 year old female presents with 1 week history of jaundice, fever and malaise. She was diagnosed with hypothyroidism for which she is receiving levothyroxine. Her blood tests show:</p> <p>Serum bilirubin 40 $\mu\text{mol/L}$ Alanine transferase (ALT) 120 iu/L Aspartate transaminase (AST) 90 iu/L Alkaline phosphatase (ALP) 200 iu/L Prothrombin time (PT) 25 sec</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Acute on chronic liver failure B. Hyperacute liver failure</p>



	<p>C. Autoimmune hepatitis D. Acute liver failure E. Drug induced hepatitis</p>
4.	<p>A 35 year old female presents with secondary amenorrhoea. Her blood test show the following:</p> <p>Serum bilirubin 42 $\mu\text{mol/L}$ Alanine transferase (ALT) 115 iu/L Aspartate transaminase (AST) 89 iu/L Alkaline phosphatase (ALP) 189 iu/L</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Primary sclerosing cholangitis B. Autoimmune hepatitis C. Primary biliary cirrhosis D. Acute liver failure E. Gilbert's syndrome</p>
5.	<p>A 42 year old obese female has severe upper abdominal pain. She vomited several times today. She has a temperature of 37.8°C. She is married and has 5 living children. She has no previous surgeries. Her blood count shows:</p> <p>Haemoglobin 123 g/L White cell count 17.3 x 10⁹/L Platelets 150 x 10⁹/L</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Ectopic pregnancy B. Ovarian torsion C. Hepatitis D. Endometriosis E. Cholecystitis</p>
6.	<p>A 48 year old woman has become increasingly fatigued over the past 10 months. Vitiligo of the hand was noted. Her blood tests show:</p> <p>Haemoglobin 88 g/L White cell count 8 x 10⁹/L Platelets 245 x 10⁹/L Mean cell volume 130 fL</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Folate Deficiency B. Thalassemia minor</p>



	<p>C. Pernicious anaemia D. Anaemia of chronic disease E. Sickle cell anaemia</p>
7.	<p>A 60 year old man presents with a lump in the left supraclavicular region. He complains that he does not eat as much anymore because he does not have the appetite. He has also lost 10kg in the last 3 months. What is the SINGLE most probable diagnosis?</p> <p>A. Gastric cancer B. Lymphoma C. Pancoast tumor D. Thyroid cancer E. Laryngeal cancer</p>
8.	<p>A 50 year old man has severe pain on defecation. On examination, a tender, reddish blue swelling is seen near the anal verge. What is the SINGLE most likely diagnosis?</p> <p>A. Perianal abscess B. Perianal haematoma C. Pilonidal cyst D. Haemorrhoids E. Anal fistula</p>
9.	<p>A 49 year old female presents with right hypochondrial pain. An ultrasound shows a large gallstone. Her BP is 120/85 mmHg; respiratory rate 18/min; Heart rate 90 bpm; Temperature 37.6°C; WBC 15 x 10⁹/L. What is the SINGLE most appropriate management?</p> <p>A. Laparoscopic cholecystectomy B. Reassure C. Low fat diet D. Ursodeoxycholic acid E. Emergency laparotomy</p>
10.	<p>42 year old obese woman presents to the emergency department with a 12 hour history of severe epigastric pain. The pain started suddenly and radiates to her back. It is relieved when sitting forward. She is nauseous and has vomited twice since the pains started. She drinks one and a half glasses of wine per day. She has no significant past medical history. She has a pulse rate of 110 beats/minute and is tender in the epigastric region. What is the SINGLE most appropriate investigation?</p> <p>A. Chest X-ray B. Abdominal ultrasound C. Serum lipase D. Abdominal X-ray E. Liver function test</p>



11.	<p>A 52 year old alcoholic man complains of epigastric and back pain associated with loose pale, offensive stools. He feels nauseous and has lost weight over the last couple of months. What is the SINGLE most likely diagnosis?</p> <p>A. Acute pancreatitis B. Chronic pancreatitis C. Gastro-oesophageal reflux disease D. Oesophagitis E. Carcinoma of the head of pancreas</p>
12.	<p>A 41 year old man has had a liver biopsy as part of investigations for abnormal liver function test. The pathology report states: special stains demonstrate the presence of a very large amount of iron pigment within hepatocytes. What SINGLE condition is identified by the pathology report?</p> <p>A. Alpha-1-antitrypsin deficiency B. Haemangioma C. Haemochromatosis D. Haemosiderosis E. Wilson's disease</p>
13.	<p>A 25 year old woman complains of diarrhoea, and abdominal cramps for the past 8 months. She says that her diarrhoea has recently become bloody. A biopsy was performed and the colonic mucosa shows crypt abscesses. What is the SINGLE most likely diagnosis?</p> <p>A. Ulcerative colitis B. Crohn's disease C. Infective diarrhoea D. Colorectal cancer E. Irritable bowel syndrome</p>
14.	<p>A 28 year old man has intermittent diarrhoea, fatigue and weight loss over the last 6 months. He has excluded gluten from his diet in the last 2 months and his symptoms have resolved. He wants to be tested to confirm the diagnosis of coeliac disease. What is the SINGLE most appropriate next step in action?</p> <p>A. Jejunal biopsy B. Reintroduce gluten prior to testing C. Sweat test D. Tissue transglutaminase antibodies E. Stool sample</p>
15.	<p>A 45 year old man had his head of pancreas removed due to malignancy. He now has a rigid abdomen which is tender, a temperature of 37.5°C, a blood pressure of 90/55 mmHg and pulse rate of 125 bpm. His past medical history includes peptic ulcer disease. What is the SINGLE most appropriate next action?</p> <p>A. CT abdomen</p>



	<p>B. X-ray abdomen C. MRI abdomen D. US abdomen E. Endoscopy</p>
16.	<p>A 56 year old woman has had severe abdominal pain for 24 hours radiating to her back and is accompanied by nausea and vomiting. She denies any diarrhoea or fever. She appears to be tachycardic and in shock. She has a history of gallstones. What is the SINGLE most likely investigations to confirm the diagnosis?</p> <p>A. Ultrasound abdomen B. Abdominal X-ray C. Serum lipase D. Urea and electrolytes E. Liver function test</p>
17.	<p>A 54 year old man presents with a worsening history of intermittent dysphagia over a period of 3 months. He has not experienced any weight loss and complains of sometimes regurgitating food, after which he says he experiences a feeling of great relief. What is the SINGLE most likely diagnosis?</p> <p>A. Achalasia B. Oesophageal carcinoma C. Scleroderma D. Plummer-Vinson syndrome E. Barrett's Oesophagus</p>
18.	<p>A 26 year old young man presents with history of passing loose stools for the past 2 months. He says his stools contain blood and mucous and are associated with abdominal pain. He had a colonoscopy after which he was started on treatment. What is the SINGLE most appropriate treatment for his condition?</p> <p>A. Mesalazine B. Corticosteroids C. Mebeverine D. Cyclosporine E. Peppermint oil</p>
19.	<p>A 58 year old man has been having frequent episodes of secretory diarrhea for the past 2 weeks. His diarrhoea is extremely watery with large amounts of mucus. A diagnosis of villous adenoma was made after performing an endoscopy. What is the SINGLE most likely electrolyte abnormality?</p> <p>A. Hyperkalemia B. Hypernatremia C. Hyponatremia D. Hypokalemia E. Hypercalcemia</p>



20.	<p>A 55 year old man develops fatigue and palpitations. He had a gastrectomy a years ago. Recent blood test were ordered which shows:</p> <p>Haemoglobin 98 g/L Mean cell volume (MCV) 110 fL</p> <p>On neurological examination, loss of proprioception and vibration sense were noted. What is the SINGLE most likely diagnosis?</p> <p>A. Iron deficiency B. Folate deficiency C. Vitamin B12 deficiency D. Haemolytic anemia E. Sickle cell disease</p>
21.	<p>A 36 year old lady has diarrhoea for the last 2 months. She has lost 8 kg in that time period. A colonoscopy was performed which showed fistulas. Perianal fistulas are also noticed. What is the SINGLE most likely diagnosis?</p> <p>A. Crohn's disease B. Irritable bowel syndrome C. Coeliac disease D. Diverticulitis E. Ulcerative colitis</p>
22.	<p>A 35 year old man presents with history of dyspepsia. Serum antibodies for H.Pylori are negative. No improvement is seen after 1 month of treatment. What is the SINGLE most appropriate next step?</p> <p>A. Urea breath test B. Repeat serum antibodies C. CT D. MRI E. Endoscopy</p>
23.	<p>A 38 year old man has just returned from Kenya a few days ago. Since his return, he has developed watery diarrhoea with crampy abdominal pain. What is the SINGLE most likely causative organism?</p> <p>A. Giardia B. Entamoeba C. Shigella D. Salmonella E. Escherichia coli</p>



24.	<p>A 25 year old woman with longstanding constipation has severe anorectal pain on defecation. She notices streaks of blood that covers her stool. Rectal examination is impossible to perform as she is in such great pain. What is the SINGLE most likely diagnosis?</p> <p>A. Anal haematoma B. Anal fissure C. Anal abscess D. Proctalgia fugax E. Haemorrhoids</p>
25.	<p>A 28 year type 1 diabetic has intermittent diarrhoea and abdominal bloating over the last 6 months. He also complains of feeling tired all the time. Tissue transglutaminase antibodies was found to be positive. What is the SINGLE most appropriate next step in action?</p> <p>A. Jejunal biopsy B. Upper gastrointestinal endoscopy C. Sweat test D. Thyroid function test E. Stool culture</p>
26.	<p>A 48 year old female presents with tiredness and painless dysphagia. She complains of a feeling of something stuck in her throat. A full blood count shows microcytic, hypochromic anaemia. On examination, glossitis is noted. An oesophageal web is found at the post cricoid region. What is the SINGLE most likely diagnosis?</p> <p>A. Coeliac disease B. Plummer vinson syndrome C. Pharyngeal carcinoma D. Barrett's oesophagus E. Oesophageal carcinoma</p>
27.	<p>A 69 year old smoker has had increasing dysphagia when eating solid food which has been on going for the past 3 months. He has notice a drop of 8 kg in weight in the past few months. What SINGLE investigations is most likely to lead to a diagnosis?</p> <p>A. Barium swallow B. Chest X-ray C. Computed tomography chest D. Endoscopy and biopsy E. Videofluoroscopy</p>
28.	<p>While performing an appendectomy, a surgeon found a mass in the caecum of a patient. The mass was removed and sent for analysis. Analysis revealed a transmural infiltration with lymphocytes and granulomas without necrosis. What is the SINGLE most probable diagnosis?</p> <p>A. Caecal Cancer B. Lymphoma</p>



	<p>C. Tuberculosis D. Crohn's Disease E. Ulcerative Colitis</p>
29.	<p>A 44 year old woman had a total abdominal hysterectomy and bilateral salpingo-oophorectomy 5 days ago. She now has increasing abdominal discomfort and is now bloating. She was encourage to stay well hydrated but she is still unable to pass gas. No bowel sounds are heard. What is the SINGLE most appropriate next step?</p> <p>A. X-Ray abdomen B. Exploratory laparoscopy C. CT abdomen D. Ultrasound abdomen E. Barium enema</p>
30.	<p>A 32 year old woman complains of brief episodes of severe shooting pain in the rectum that usually occur at night. Rectal examination and flexible sigmoidoscopy detect no abnormalities. What is the SINGLE most probable diagnosis?</p> <p>A. Anal haematoma B. Anal fissure C. Rectal carcinoma D. Proctalgia fugax E. Piles</p>
31.	<p>A 42 year old female presents to her GP following a staging CT for her recently diagnosed renal cell carcinoma. On the CT scan, gallstones were noticed in the gallbladder. She has no history of abdominal pain or jaundice and is otherwise well. A left sided nephrectomy for her renal cell carcinoma has been scheduled. What is the SINGLE most appropriate course of action?</p> <p>A. Ultrasound abdomen B. ERCP (Endoscopic Retrograde cholangiopancreatography) C. MRCP (Magnetic resonance cholangiopancreatography) D. Reassurance E. Laparoscopic cholecystectomy</p>
32.	<p>A 60 year old man presents with weight loss and complains of mild abdominal pain, bloating and diarrhoea for the past 6 months. A recent blood test shows a haemoglobin of 7 g/dl. What is the SINGLE most appropriate investigation?</p> <p>A. Barium enema B. Colonoscopy C. Sigmoidoscopy D. Computed tomographic (CT) colonography E. Carcinoembryonic Antigen (CEA)</p>



33.	<p>A 38 year old man complains of "crushing" chest discomfort for 1 hour that started when he drank a cold drink. He has no significant medical history. ECG shows sinus rhythm. He is given sublingual nitroglycerin in the emergency room that improves his chest pain almost immediately. He has a pulse of 70 beats/minute, a blood pressure of 130/80 mmHg and a respiratory rate of 18 breaths/minute. Cardiac enzymes came back negative. What is the SINGLE most likely diagnosis?</p> <p>A. Myocardial Infarction B. Pericarditis C. Oesophageal spasm D. Pulmonary embolism E. Pneumothorax</p>
34.	<p>A 58 year old man presents with a lump in the left supraclavicular fossa. It has been present for the last 6 months. He also complains of dyspepsia and loss weight which he accounts for due to his reduced appetite. What is the SINGLE most likely term for the lump?</p> <p>A. Virchow's node B. Lymphoma C. Pancoast tumor D. Thyroglossal cyst E. Reactive lymph nodes</p>
35.	<p>A 12 year old child complains of right iliac fossa pain and diarrhoea. On colonoscopy, a transmural, cobblestone appearance mucosa is seen near the ileo-caecal junction. What is the SINGLE most appropriate management?</p> <p>A. Mesalazine B. Paracetamol C. Ibuprofen D. Metronidazole E. Mercaptopurine</p>
36.	<p>A 40 year old woman complains of dysphagia when eating solids and drinking liquids. She sometimes suffers from severe retrosternal chest pain. Barium swallow reveals a dilated oesophagus which tapers to a fine distal end. What is the SINGLE most appropriate management?</p> <p>A. Reassurance B. Antispasmodics C. Dilatation of the lower oesophageal sphincter D. Endoscopic diverticulectomy E. Calcium channel blocker</p>
37.	<p>A 55 year old man with no past medical history comes to your office for the evaluation of "difficulty swallowing" foods. He has had this problem for almost a year, and finds it difficult for him to swallow both solids and liquids. A barium meal shows gross dilatation of the esophagus with a smooth narrowing at the lower end of the esophagus. What is the SINGLE most likely diagnosis?</p>



	<p>A. Achalasia B. Myasthenia gravis C. Oesophageal carcinoma D. Oesophageal web E. Systemic sclerosis</p>
38.	<p>What is the pathological change in Barrett's esophagus?</p> <p>A. Replacement of squamous epithelium to columnar epithelium B. Replacement of columnar epithelium to squamous epithelium C. Replacement of squamous epithelium to cuboidal epithelium D. Dysplasia E. Hyperplasia</p>
39.	<p>A 25 year old woman has diarrhoea and abdominal bloating over the last 4 months. On examination, she has blistering rash over her elbows. Her blood test show:</p> <p>Haemoglobin 105 g/L Mean cell volume (MCV) 79 fL</p> <p>On jejunal biopsy, there is shortening of the villi and lymphocytosis. What is the SINGLE most likely diagnosis?</p> <p>A. Coeliac disease B. Whipple's disease C. Crohn's disease D. Tropical sprue E. Giardiasis</p>
40.	<p>A 28 year old female presents with a 4 month history of diarrhoea, lethargy and weight loss. She complains of abdominal discomfort and passing stools more than 6 times a day. An endoscopy was performed which shows cobblestone mucosa. What is the SINGLE most likely diagnosis?</p> <p>A. Amoeba B. Colon Cancer C. Infective diarrhoea D. Crohn's disease E. Ulcerative colitis</p>
41.	<p>A 33 year old woman has severe upper abdominal pain with radiation to the back within 24 hours of removing gallstones by endoscopic retrograde cholangiopancreatography (ERCP). The pain is eased when she leans forward. She reports some nausea and vomiting but denies any diarrhoea. Jaundice is noted and the epigastric region is tender on palpation. Her blood pressure is 120/80 mmHg, and temperature is 37.3°C. What is the SINGLE most likely reason for his signs and symptoms?</p>



	<p>A. Ascending cholangitis B. Acute pancreatitis C. Perforated duodenal ulcer D. Chronic pancreatitis E. Bleeding</p>
42.	<p>A 48 year old woman is admitted to A&E with a productive cough and a moderate fever. She complains of central chest pain and regurgitation of undigested food. She finds it difficult to swallow both food and liquids. These symptoms of swallowing have been present for the last 4 months. A chest X-rays shows megaesophagus. What is the most likely diagnosis?</p> <p>A. Pharyngeal pouch B. Hiatus hernia C. Bulbar palsy D. Achalasia E. Tuberculosis</p>
43.	<p>A 44 year old male is admitted with repeated attacks of pancreatitis. He has peripheral paresthesia and loss of proprioception in the legs. He is having memory loss and difficulties with thinking. What is the SINGLE most appropriate management?</p> <p>A. Thiamine B. Pyridoxine C. Hydroxocobalamin D. Lipase E. Antibiotics</p>
44.	<p>A 36 year old bodybuilder presents with sudden onset of severe abdominal pain. He was previously fit and well and only suffers from indigestion occasionally. He has been taking ibuprofen for a long term knee injury. On examination, he has a rigid abdomen, lies motionless on the bed and has no bowel sounds. His pulse rate is 115 bpm and blood pressure is 100/60 mmHg. What is the SINGLE most likely diagnosis?</p> <p>A. Biliary peritonitis B. Ischemic colon C. Pancreatic necrosis D. Perforated diverticulum E. Perforated peptic ulcer</p>
45.	<p>A 43 year old male alcoholic presents after a large haematemesis. He has some spider naevi on his chest. His blood pressure is 100/76 mmHg and pulse rate is 110 beats/minute. On examination. a swollen abdomen with shifting dullness is seen. What is the SINGLE most likely diagnosis?</p> <p>A. Peptic ulcer B. Mallory-weiss tear C. Oesophageal cancer D. Oesophageal varices</p>



	E. Oesophagitis
46.	<p>A 70 year old man had a right hemicolectomy for caecal carcinoma 4 days ago. He now has abdominal distension and recurrent vomiting. He has not opened his bowels since the surgery. On auscultation, no bowel sounds were heard. He has a temperature of 37.3°C. FBC was done. Results show:</p> <p>WBC - $9 \times 10^9/\text{L}$ Hb - 12g/dl</p> <p>What is the SINGLE most appropriate next management?</p> <p>A. IV Antibiotics B. Glycerine suppository C. Laparotomy D. NG tube suction and IV fluids E. Total parenteral nutrition</p>
47.	<p>An 65 year old lady had a urinary tract infection which was treated with broad spectrum antibiotics. A few days later she developed bloody diarrhoea and abdominal pain. She has a temperature of 38.6°C. Her blood tests show:</p> <p>Haemoglobin 119 g/L White blood cells $18 \times 10^9/\text{L}$ CRP 180 mg/l</p> <p>What is the SINGLE most likely management?</p> <p>A. Co-amoxiclav B. Piperacillin + tazobactam C. Ceftriaxone D. Vancomycin E. Amoxicillin</p>
48.	<p>A 54 year old woman, known case of pernicious anaemia refuses to take hydroxocobalamin IM as she is needle shy. She is asking for oral medication. What is the SINGLE best reason that describes why oral medications will not be effective?</p> <p>A. Intrinsic factor deficiency B. Increased gastric acidity C. Lack of gastric acidity D. Irritated gastric mucosa E. abundance of ileal binding sites</p>
49.	<p>A 44 year old female presents with right upper quadrant pain radiating to the right shoulder. On examination, her sclera appear yellow. Her BP is 120/85 mmHg; respiratory rate 15/min; Heart rate 85 bpm; Temperature 37.3°C; WBC $9 \times 10^9/\text{L}$. She has no relevant past medical history and is not on any medications. What is the SINGLE most appropriate investigation?</p>



	<p>A. Ultrasound abdomen B. Urinary bilirubin C. Alkaline phosphatase D. Serum cholesterol E. X-ray abdomen</p>
50.	<p>An 8 year old child presents with recurrent abdominal pain. He has three episodes of abdominal pain within the last 3 months and it is severe enough to affect his activity in school. The abdominal pain is intense and located periumbilically lasting for a few hours and is associated with nausea and episodic headaches. He maintains a good appetite and is an appropriate weight for his age. On examination, there were no significant findings. Full blood count, urea and electrolytes are found to be normal. What is the SINGLE most appropriate next step in management?</p> <p>A. Ultrasound abdomen B. Computed tomography abdomen C. Reassure D. Prescribe omeprazole E. Admit and administer intravenous fluids</p>
51.	<p>A 44 year old male was admitted to the medical ward with complaint of diarrhoea, abdominal pain and weight loss for the last few months. The examination notes finger clubbing, perianal skin tags and abdominal tenderness. A colonoscopy reveals transmural granulomatous inflammation involving the ileocaecal junction. What is the SINGLE most likely diagnosis?</p> <p>A. Crohn's disease B. Irritable bowel syndrome C. Bowel cancer D. Diverticulitis E. Ulcerative colitis</p>
52.	<p>A 55 year old woman complains of retrosternal chest pain and difficulty swallowing which is intermittent and unpredictable. She says that food gets stuck in the middle of the chest and she has to clear it with a drink of water. She is then able to finish the meal without any further problem. A barium meal shows a 'corkscrew patterned oesophagus'. What is the SINGLE most likely cause of the dysphagia?</p> <p>A. Oesophageal candidiasis B. Oesophageal carcinoma C. Oesophageal spasm D. Pharyngeal pouch E. Plummer-vinson syndrome</p>
53.	<p>A 51 year old man has become increasingly fatigued over the past 10 months. His medical history includes having a gastrectomy a year ago. His physical examination is unremarkable. His blood tests show:</p>



	<p>Haemoglobin 85 g/L White cell count $7 \times 10^9/L$ Platelets $240 \times 10^9/L$ Mean cell volume 129 fL</p> <p>What is the SINGLE most likely finding on a blood smear?</p> <p>A. Hypersegmented neutrophils B. Nucleated RBC C. Blasts D. Hypochromic, microcytic RBC E. Schistocytes</p>
54.	<p>A 41 year old lady attends the clinic complaining of a long history of mild pruritus and fatigue. She looks jaundiced. Alkaline phosphatase was raised on routine liver function test. She was diagnosed with Sjögren syndrome a few years back. What is the SINGLE most appropriate test to perform to help make a diagnosis?</p> <p>A. Rheumatoid factor B. Anti-nuclear antibodies C. Anti Smooth Antibodies D. Antimitochondrial antibodies E. Antineutrophil cytoplasmic antibodies</p>
55.	<p>A 39 year old patient was recently diagnosed with coeliac disease and has been treated with a gluten free diet for 2 years. He now has an exacerbation of the classic symptoms of coeliac disease such as abdominal pain, diarrhoea, and has lost significant weight. The biopsy of the small intestine shows lymphomatous infiltrates. What is the SINGLE most likely diagnosis?</p> <p>A. Lymphoma B. Diverticular disease C. Lynch syndrome D. Gastric tuberculosis E. Peritoneal tumor</p>
56.	<p>A 39 year old woman is admitted with central abdominal pain radiating through to the back. She has vomited several times in the last 24 hours. She denies any diarrhoea or fever. Bending forward helps alleviate the pain. Her blood test show:</p> <p>Amylase 1335 U/mL (Elevated)</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Cirrhosis B. Acute pancreatitis C. Perforated duodenal ulcer</p>



	D. Dissecting aortic aneurysm E. Mesenteric ischaemia
57.	<p>A 49 year old female presents with right upper quadrant pain radiating to the right shoulder. An ultrasound establishes the diagnosis of gallstones. Her BP is 120/85 mmHg; respiratory rate 15/min; Heart rate 85 bpm; Temperature 37.3°C; WBC 9 x 10⁹/L. What is the SINGLE most appropriate management?</p> <p>A. Elective laparoscopic cholecystectomy B. Reassure C. Low fat diet D. Ursodeoxycholic acid E. Emergency laparotomy</p>
58.	<p>A 50 year old man comes to A&E with abdominal pain that began suddenly about 1 hour ago. The pain is now generalized, constant, and extremely severe. He lies motionless on the stretcher, is diaphoretic, and has shallow, rapid breathing. His abdomen is rigid, very tender to deep palpation, and has guarding. X-ray shows free air under the diaphragm. What is the SINGLE most likely diagnosis?</p> <p>A. Biliary peritonitis B. Ischemic colon C. Pancreatic necrosis D. Pulmonary embolism E. Perforated peptic ulcer</p>
59.	<p>A 52 year old man who underwent a partial gastrectomy 10 months ago presents with increasing fatigue. A yellow tinge is noted on his skin and he has a red sore tongue. What is the SINGLE most likely diagnosis?</p> <p>A. B12 deficiency B. Cancer of the colon C. Alcoholism D. Coeliac disease E. Crohn's disease</p>
60.	<p>An 83 year old woman who is a resident in a nursing home is admitted to a hospital with a 4 day history of chronic constipation. She has had no weight loss or change in appetite. She has been on analgesics for 3 weeks for her back pain. She is in obvious discomfort. Rectal examination reveals faecal impaction with hard stools. What is the SINGLE most appropriate immediate management?</p> <p>A. Codeine phosphate for pain relief B. High fiber diet C. IV fluids D. Phosphate enemas E. Urinary catheterisation</p>



61.	<p>A 17 year old boy has abdominal pain and diarrhoea for the last 3 months. He has lost 7 kg in the last 2 months. On colonoscopy, deep ulcers and skip lesions are noticed on the mucosa. Perianal skin tags were seen on examination. What is the SINGLE most likely diagnosis?</p> <p>A. Crohn's disease B. Irritable bowel syndrome C. Coeliac disease D. Diverticulitis E. Ulcerative colitis</p>
62.	<p>A 70 year old woman is reviewed following a course of oral clindamycin for a right lower limb cellulitis. She recently developed bloody diarrhoea and abdominal pain. She has a temperature of 38.8°C. Her blood tests show:</p> <p>Haemoglobin 125 g/L White blood cells 17 x 10⁹/L CRP 140 mg/l</p> <p>What is the SINGLE most likely management?</p> <p>A. Oral co-amoxiclav B. IV piperacillin + tazobactam C. IV ceftriaxone D. Oral metronidazole E. Continue oral clindamycin</p>
63.	<p>A 61 year old man presents with fatigue and palpitations. His past surgical history includes an ileal resection which was performed one year ago. An FBC was requested and the results are as follows:</p> <p>Haemoglobin 93 g/L</p> <p>Mean cell volume (MCV) 111 fL</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Anaemia of chronic disease B. Iron deficiency C. Folate deficiency D. Haemolytic anemia E. Vitamin B12 deficiency</p>
64.	<p>A 46 year old woman presents with sudden episode of abdominal pain which started about 5 hours ago. The pain is located in the epigastrium and radiates to her back. She has vomited twice since the onset of attack. The pain is made worse by lying flat on her back and she is more comfortable sitting up and bending forwards. She was informed of the presence of gallstones in her gall bladder four weeks earlier when she reported pain in the right hypochondrium. Her temperature is 38.4°C, blood pressure is 120/85 mmHg, and pulse rate is 115 beats/minute. There is no presence of</p>



	<p>jaundice but there is marked tenderness in the epigastrium. What is the SINGLE most appropriate investigation?</p> <p>A. Abdominal X-ray B. Serum amylase C. Serum bilirubin D. Barium swallow E. Urea and electrolytes</p>
65.	<p>A 24 year old female presents with a 4 month history of bloody diarrhoea, lethargy and weight loss. She complains of abdominal discomfort and passing stools more than 8 times a day. An endoscopy was performed which shows deep ulcers, and skip lesions. What is the SINGLE most likely diagnosis?</p> <p>A. Diverticulitis B. Colon Cancer C. Infective diarrhoea D. Crohn's disease E. Ulcerative colitis</p>
66.	<p>A 43 year old lady presents with jaundice. Skin excoriations were seen on physical examination. Blood test reveal a raised alkaline phosphatase with mildly raised alanine transaminase. Antimitochondrial antibodies are found to be positive. What is the SINGLE most likely diagnosis</p> <p>A. Hepatitis B B. Hepatitis C C. Primary biliary cirrhosis D. Primary sclerosing cholangitis E. Obstetric cholestasis</p>
67.	<p>A 30 year old lady complains of intermittent diarrhoea, chronic abdominal pain and tenesmus. Sometimes she notices blood in her stool. What is the SINGLE most likely cause of her symptoms?</p> <p>A. Inflammatory bowel disease B. Diverticulosis C. Irritable bowel disease D. Adenomyosis E. Endometriosis</p>
68.	<p>A 22 year old man presents with a 2 month history of diarrhoea. He says his bowels have not been right for the past few months and he frequently has to run to the toilet. These symptoms seemed to be improving up until two weeks ago and for the past week, he notices the presence of blood when he passes stool. On examination, there are aphthous oral ulcers. He has not lost any weight and has a good appetite. Examination of his abdomen demonstrates mild tenderness in the left lower quadrant but no guarding. What is the SINGLE most likely diagnosis?</p> <p>A. Ulcerative colitis</p>



	<p>B. Crohn's disease C. Infective diarrhoea D. Colorectal cancer E. Anal Fissure</p>
69.	<p>A 23 year old woman has abdominal bloating, weight loss and intermittent diarrhoea. She describes her stools as “frothy” and difficult to flush down the toilet. Her blood test show:</p> <p>Haemoglobin 105 g/L White cell count $7.1 \times 10^9/L$ Platelets $350 \times 10^9/L$ Ferritin 11 ng/ml Vitamin B12 225 ng/L Folate 1.9 mcg/L</p> <p>Endomysial antibodies were tested positive. What is the SINGLE most likely diagnosis?</p> <p>A. Coeliac disease B. Ulcerative colitis C. Crohn’s disease D. Irritable bowel syndrome E. Giardiasis</p>
70.	<p>A 34 year old man presents with slow progressive dysphagia. He has been using H2 blockers for the last year because of retrosternal discomfort. He has not notice any weight loss. A haemoglobin level was done a month ago which reads 13.3g/dL. What is the SINGLE most likely diagnosis?</p> <p>A. Foreign body B. Plummer vinson syndrome C. Pharyngeal pouch D. Peptic stricture E. Esophageal Cancer</p>
71.	<p>A 21 year old woman complains of diarrhoea, and abdominal cramps for the past 5 months. She says that her diarrhoea has recently become bloody. A rectal biopsy was performed and histology was reported as “decreased amounts of goblet cells”. What is the SINGLE most likely diagnosis?</p> <p>A. Ulcerative colitis B. Crohn's disease C. Infective diarrhoea D. Colorectal cancer E. Irritable bowel syndrome</p>
72.	<p>A 15 year old child complains of right iliac fossa pain and diarrhoea. He has lost 7 kg in the last 2 months. On colonoscopy, skip lesions are noticed on the mucosa. What is the SINGLE most appropriate management?</p>



	<p>A. Prednisolone B. Mebeverine C. Peppermint oil D. Metronidazole E. Vancomycin</p>
73.	<p>A 59 year old man has multiple liver metastasis with the primary tumour originating from the large bowel. He has abdominal pain, and jaundice. On general inspection, he looks cachexic and drowsy. He has significant ascites and oedema seen on both ankles. His family have concerns that he is not having sufficient fluids orally. His urine output is low. He currently takes regular haloperidol 1.5 mg three times a day and lactulose 10ml twice a day. His blood test show:</p> <p>Serum urea 6.2 mmol/L Serum creatinine 85 μmol/L Sodium 129 mmol/L Calcium 2.42 mmol/l Potassium 3.6 mmol/l Albumin 18 g/L Bilirubin 105 μmol/L Alkaline phosphatase (ALP) 411 U/L</p> <p>What is the SINGLE most appropriate management?</p> <p>A. Albumin infusion B. Crystalloids intravenously C. Furosemide intravenous D. Fluids via nasogastric tube E. Cease haloperidol</p>
74.	<p>A 56 year old man comes for a routine check up. He is noted to have increased skin pigmentation, spider angioma and a heart murmur. He has mild joint pain particularly in those of the hands. He rarely drinks alcohol. On examination, his liver is firm and has a span of 10 cm. On further investigations of the heart murmur, he was given the diagnosis of restrictive cardiomyopathy. What is the SINGLE condition that he is most likely at risk of?</p> <p>A. Cerebellar degeneration B. Gallstones C. Renal failure D. Hepatoma E. Hepatic vein thrombosis</p>
75.	<p>A 35 year old woman has sudden onset epigastric pain, chills and nausea. She gave birth to a health baby 2 days ago. Her blood pressure was normal throughout pregnancy. Her temperature is 37.3°C and her blood pressure is 139/90 mmHg. Urinalysis reveals no proteins. Her blood test show:</p> <p>Alkaline phosphatase (ALP) 420 U/L</p>



	<p>Alanine transferase (ALT) 650 U/L Bilirubin 25 $\mu\text{mol/L}$ International normalized ratio (INR) 1.0 Haemoglobin 101 g/L Platelets 350 x 109/L White cell count (WCC) 13.5 x 109/L</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Acute cholecystitis B. Pre-eclampsia C. Obstetric cholestasis D. Acute fatty liver of pregnancy E. HELLP syndrome</p>
76.	<p>A 33 year old pregnant woman develops severe epigastric pain, nausea and vomiting at 35 weeks gestation. She was diagnosed with pre-eclampsia 2 weeks ago. On examination, she has yellow sclerae. Laboratory investigations show a deranged liver function, low platelets, low serum glucose, raised serum ammonia. What is the SINGLE most likely diagnosis?</p> <p>A. Acute fatty liver of pregnancy B. Hyperemesis gravidarum C. Biliary colic D. HELLP syndrome E. Autoimmune hepatitis</p>
77.	<p>A 41 year old pregnant woman presents to A&E with right upper quadrant pain that started in the last 12 hours and is gradually worsening. She has dark urine and pale stools for the last 2 days. She is noted to have a yellow sclera on examination. Her blood pressure is 145/95 mmHg. What is the SINGLE most appropriate investigation?</p> <p>A. Ultrasound of abdomen B. Urine protein: creatinine ratio C. Urinary bilirubin D. Urinary urobilinogen E. Alkaline phosphatase</p>
78.	<p>A 33 year old lady who has been traveling around Europe for a few months now returns to the United Kingdom with lethargy, abdominal pain, loose watery diarrhoea and bloating. She has lost a few kilograms since coming back from the trip. Her physical examination remains unremarkable with abdominal examination having mild generalised tenderness. What is the SINGLE most likely organism causing her symptoms?</p> <p>A. Campylobacter jejuni B. Salmonella enterica C. Shigella dysentery D. Staphylococcus aureus</p>



	E. Giardia lamblia
79.	<p>A 21 year old man has been brought to A&E by his friends as he is having a yellow sclera and yellowing of the skin. He has recently been having flu-like symptoms and a non-productive cough. A urine dipstick was performed and was normal. His blood results show:</p> <p>Haemoglobin 129 g/dl Reticulocytes 1.2% Bilirubin 44 $\mu\text{mol/L}$ Alkaline phosphatase (ALP) 88 Alanine transferase (ALT) 24 Albumin 42</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Acute hepatitis B. Gilbert's syndrome C. Dubin Johnson Syndrome D. Glucose-6-phosphate dehydrogenase E. Infectious mononucleosis</p>
80.	<p>A 17 year old boy presents to A&E after his mother has noticed that his sclera has a yellowish tint. He has been taking over the counter medication for an upper respiratory tract infection for the past few days. He is otherwise well and has no significant past medical history. What is the SINGLE most likely diagnosis?</p> <p>A. Acute hepatitis B. Gilbert's syndrome C. Drug induced haemolysis D. Glucose-6-phosphate dehydrogenase E. Acute cholecystitis</p>
81.	<p>A 47 year old women diagnosed with coeliac at the age of three has recently developed diarrhea and weight loss for the past three months. What is the SINGLE most likely reason for this?</p> <p>A. Tapeworm infection B. Lymphoma of the small intestine C. Tuberculosis D. Giardia E. Irritable bowel syndrome</p>
82.	<p>A 31 year old female presented with complains of chest pain and difficulty in swallowing liquids and solids. She has also been suffering from recurrent chest infection for the past few months. What is the SINGLE most likely diagnosis?</p> <p>A. Schatzki ring B. Plummer-Vinson syndrome</p>



	<p>C. Achalasia cardia D. Peptic stricture E. Oesophageal carcinoma</p>
83.	<p>A 33 year old female has intermittent diarrhoea and abdominal bloating which is usually exacerbated by consumption of wheat and eggs. She has been feeling more tired in the past few months. She has no significant weight loss. What is the SINGLE most likely diagnosis?</p> <p>A. Coeliac disease B. Ulcerative colitis C. Crohn's disease D. Gastroenteritis E. Malabsorption</p>

SAMPLE

GENERAL SURGERY



1.	<p>A 24 year old woman presents with a 1 cm small smooth, firm, mobile mass in her left breast. She is very anxious and wants a form of investigation. What is the SINGLE most appropriate investigation to perform?</p> <p>A. Mammography B. Ultrasound scan of breast C. Fine needle aspiration cytology D. Magnetic resonance imaging scan of breast E. Computerised tomography scan of breast</p>
2.	<p>A 39 year old woman has been having tingling and numbness of her thumb, index and middle fingers for a while. She has been treated with local steroids but there was no improvement. She has planned to undergo a surgical procedure. What is the SINGLE most likely structure to be incised?</p> <p>A. Flexor digitorum profundus B. Transverse carpal ligament C. Palmar aponeurosis D. Extensor retinaculum E. Antebrachial fascia</p>
3.	<p>What anatomical structure is pierced during a midline port insertion during a laparoscopic cholecystectomy?</p> <p>A. External iliac muscle B. Linea alba C. Rectus abdominis D. Conjoined tendon E. Intercostal muscles</p>
4.	<p>A 52 year old man has hoarseness of voice following a thyroid surgery a week ago. There has been no signs of improvement. What is the SINGLE most likely anatomical structure(s) involved?</p> <p>A. Bilateral recurrent laryngeal nerve</p>



	<p>B. Unilateral recurrent laryngeal nerve C. Unilateral external laryngeal nerve D. Bilateral external laryngeal nerve E. Vocal cords</p>
5.	<p>A 55 year old man has been admitted for an elective herniorrhaphy. Which among the following is the SINGLE most likely reason to postpone his surgery?</p> <p>A. History of asthma B. BMI > 30 C. Deep venous thrombosis 2 years ago D. Diastolic BP of 90 mmHg E. Myocardial infarction 2 months ago</p>
6.	<p>A 55 year old man with cirrhosis of the liver complains of tiredness and right upper quadrant pain over the last few months. He has lost 8 kg in the last 2 months. The liver is palpable on abdominal examination. What is the SINGLE most appropriate investigation?</p> <p>A. CA 125 B. CA 15-3 C. CA 19-9 D. Carcinoembryonic antigen (CEA) E. Alpha-fetoprotein (AFP)</p>
7.	<p>A 60 year old woman has lower abdominal discomfort and mild abdominal distention. On pelvic examination, a nontender, solid irregular right adnexal mass is felt. Her pap smear done a year ago was normal. What is the SINGLE most appropriate tumour marker to request for?</p> <p>A. CA 125 B. CA 15-3 C. CA 19-9 D. CA 15-3 E. Alpha-fetoprotein (AFP)</p>
8.	<p>A 50 year old man is admitted for an elective herniorrhaphy. Which SINGLE best criteria would lead to his elective procedure being postponed?</p> <p>A. Systolic blood pressure of 110 mmHg B. Myocardial infarction 2 months ago C. Haemoglobin of 12 g/dL D. Pain around the hernia E. Abdominal distention</p>
9.	<p>A 57 year old man complains of symptoms of vomiting, tiredness, and palpitations. He has lost 8 kg in the last 3 months. On examination, hepatomegaly and ascites is noted. He has a palpable left supraclavicular mass. Records show that he is blood group A. What is the SINGLE most likely diagnosis given the symptoms and risk factors?</p>



	<p>A. Gastric carcinoma B. Colorectal carcinoma C. Peptic ulcer disease D. Atrophic gastritis E. Krukenberg tumor</p>
10.	<p>A 68 year old male presents with swelling in the lower pole of the parotid gland. This swelling has been slow growing for the past 7 years. On examination, the parotid gland is firm in consistency. What is the SINGLE most probable diagnosis?</p> <p>A. Pleomorphic adenoma B. Adenolymphoma C. Mikulicz's disease D. Parotiditis E. Frey's syndrome</p>
11.	<p>A 62 year old has per rectal bleeding and painful defecation. In the last 2 months, he has noticed a change in bowel habit. A full blood count shows slight anaemia. What is the SINGLE most likely diagnosis?</p> <p>A. Colorectal carcinoma B. Coeliac disease C. Crohn's disease D. Ulcerative colitis E. Irritable bowel syndrome</p>
12.	<p>A 32 year old man is about to undergo an elective inguinal hernia surgery. His blood tests show:</p> <p>Haemoglobin 82 g/L Mean cell volume 70 fL White cell count $5 \times 10^9/L$ Platelets $180 \times 10^9/L$</p> <p>What is the SINGLE most appropriate next action?</p> <p>A. Investigate and postpone the surgery B. Blood transfusion and proceed with surgery C. Blood transfusion and defer surgery D. Continue with surgery with 2 units cross matched blood on stand by E. Platelet transfusion and proceed with surgery</p>
13.	<p>A 55 year old male presents with longstanding gastric reflux, dysphagia and chest pain. He says it came on gradually and initially only noticed it with solid food but more recently has been having symptoms with soft foods also. Barium swallow shows irregular narrowing of the mid-thoracic oesophagus with proximal shouldering. What is the SINGLE most appropriate diagnosis?</p>



	<p>A. Achalasia B. Oesophageal spasm C. Gastro-oesophageal reflux disease (GORD) D. Barrett's oesophagus E. Oesophageal carcinoma</p>
14.	<p>A 57 year old male presents with sudden onset of severe abdominal pain and rigidity. The pain initially started as left lower quadrant pain but is now generalized. He has a fever and a pulse of 135 beats/minute. He has no past medical or surgical history of note and he is not taking any regular medications. What is the SINGLE most likely diagnosis?</p> <p>A. Intussusception B. Bowel ischaemia C. Sigmoid volvulus D. Perforated diverticulum E. Zenker's diverticulum</p>
15.	<p>A 28 year old pregnant woman with polyhydramnios comes for an anomaly scan at 31 weeks. On ultrasound scan, there was no gastric bubble seen. What is the SINGLE most likely diagnosis?</p> <p>A. Duodenal atresia B. Oesophageal atresia C. Gastroschisis D. Exomphalos E. Diaphragmatic hernia</p>
16.	<p>A 58 year old patient presents with altered bowel habits and bleeding per rectum. A full blood count shows the presence of mild anaemia. A sigmoidoscopy shows an ulcer. What is the SINGLE most likely diagnosis?</p> <p>A. Colorectal carcinoma B. Coeliac disease C. Crohn's disease D. Ulcerative colitis E. Irritable bowel syndrome</p>
17.	<p>A 55 year old man has a history of weight loss and tenesmus. He is diagnosed with rectal carcinoma. Which SINGLE risk factor is not associated with rectal carcinoma?</p> <p>A. Smoking B. Family history C. Polyposis syndromes D. Inflammatory bowel disease E. High fibre diet</p>



18.	<p>A 62 year old lady with family history of ovarian carcinoma. A pelvis ultrasound scan reveals a complex mass that is 7 cm by 5 cm in the left adnexa. What is the SINGLE most appropriate tumour marker to request for?</p> <p>A. CA 125 B. CA 15-3 C. CA 19-9 D. CA 15-3 E. Alpha-fetoprotein (AFP)</p>
19.	<p>A 67 year old woman presents with a firm, round, painless 5cm lump in her right breast. She has a bruise on the surface and there is no discharge. What is the SINGLE most likely diagnosis?</p> <p>A. Fat necrosis B. Fibroadenoma C. Fibroadenosis D. Duct ectasia E. Breast cancer</p>
20.	<p>A 22 year old man presents with haemoptysis. He had a tonsillectomy done 7 days ago. His blood pressure is 120/80 mmHg, pulse rate is 70 beats/minute and respiratory rate is 18 breaths/minute. What is the SINGLE most appropriate next step?</p> <p>A. Blood transfusion B. Oral antibiotics and discharge C. Admit and administer intravenous antibiotics D. Return to theatre and explore E. Intubate</p>
21.	<p>A 60 year old man presents with a lump in the left supraclavicular region. He complains of reduced appetite and he has lost 7 kg in the last two months. What is the SINGLE most probable diagnosis?</p> <p>A. Thyroid carcinoma B. Gastric carcinoma C. Bronchial carcinoma D. Mesothelioma E. Laryngeal carcinoma</p>
22.	<p>A 49 year old lady had a colostomy closure 4 days ago. She now comes with fluctuating small swelling in the stoma. Her temperature is 37.9°C, respiratory rate is 18/min, pulse rate is 80 bpm. What is the SINGLE most appropriate management?</p> <p>A. Local exploration B. Exploratory laparotomy C. CT abdomen D. Ice packs E. Analgesia and rest</p>



23.	<p>A 44 year old alcoholic presents with painless jaundice. He has lost 9 kg in the last 4 months. His stools are pale and he has dark urine. What is the SINGLE most likely diagnosis?</p> <p>A. Cancer of the head of pancreas B. Cancer in the tail of pancreas C. Chronic pancreatitis D. Biliary colic E. Common duct stone</p>
24.	<p>A 44 year old man has just had a hemi-colectomy for colorectal cancer. He is now post-op and has been put on 100% facemask oxygen. An arterial-blood gas analysis reveals: pH is 7.54 PaO₂ = 28.8kPa PaCO₂ = 3.8kPa He is breathless and dyspneic. What is the SINGLE best management for this patient?</p> <p>A. Physiotherapy B. Ventilate and intubate C. Immediate laparotomy D. IV antibiotics E. Reduce oxygen</p>
25.	<p>A 35 year old construction worker is diagnosed with indirect inguinal hernia. Which statement below best describes indirect inguinal hernias?</p> <p>A. Passes through the superficial inguinal ring only B. Lies above and lateral to the pubic tubercle C. Does not pass through the superficial inguinal ring D. Passes through the deep inguinal ring E. Passes medial to the inferior epigastric vessels</p>
26.	<p>A 60 year old man has difficulty in swallowing, regurgitation of food and bad breath. He has been coughing a lot lately. He has lost some weight recently in the last couple of months and is concerned about oesophageal cancer. What is the SINGLE most appropriate initial investigation?</p> <p>A. Barium swallow B. Computed tomography scan of chest C. Manometry D. Skeletal survey E. Endoscopy</p>
27.	<p>A 72 year old man presents with intermittent difficulty in swallowing with regurgitation of stale food materials. Lately, he has been having chronic cough. What is the SINGLE most likely diagnosis?</p> <p>A. Benign stricture B. Oesophageal carcinoma</p>



	<p>C. Oesophageal spasm D. Pharyngeal pouch E. Systemic sclerosis</p>
28.	<p>A 65 year old woman has been losing weight and feels lethargic. Three years ago, she had a right hemicolectomy for cancer of the ascending colon. She looks pale on examination but there were no abdominal findings. What is the SINGLE most appropriate investigation?</p> <p>A. CA 125 B. CA 15-3 C. CA 19-9 D. Carcinoembryonic antigen (CEA) E. Alpha-fetoprotein (AFP)</p>
29.	<p>A 75 year old man has left-sided earache and discomfort when he swallows. There is ulceration at the back of his tongue and he has a palpable non-tender cervical mass. What is the SINGLE most likely diagnosis?</p> <p>A. Acute mastoiditis B. Dental abscess C. Herpes zoster infection D. Oropharyngeal carcinoma E. Tonsillitis</p>
30.	<p>A 60 year old man has right upper quadrant discomfort. He has lost 10 kg in the last 4 months. On examination, a palpable liver with nodularities was found. Three years ago, he had a right hemicolectomy for a colorectal cancer. What is the SINGLE most appropriate tumour marker to investigate?</p> <p>A. CA 125 B. CA 15-3 C. CA 19-9 D. Carcinoembryonic antigen (CEA) E. Alpha-fetoprotein (AFP)</p>
31.	<p>A 35 year old day 1 post caesarean section complains of inability to void. She denies dysuria but complains of fullness. She was given an epidural for analgesia. What is the SINGLE most appropriate investigation?</p> <p>A. Midstream specimen of urine B. Intravenous urogram (IVU) C. Ultrasound of the kidneys, ureters & bladder D. Serum calcium E. Bladder scan</p>



32.	<p>An 8 year old child has oral burns is found not to be breathing well. Intubation has failed. His oxygen saturations are low. What SINGLE anatomical structure is likely to be pierced to help this child recover?</p> <p>A. Cricothyroid membrane B. Dura Mater C. Thyroid gland D. Conjoint tendon E. Intercostal muscles</p>
33.	<p>A 67 year old female underwent a radical mastectomy. She now comes with the complaint of swelling and redness in her right upper limb. Which of the following structions are responsible for these symptoms?</p> <p>A. Epitrochlear lymph node B. Cephalic vein C. Subclavian artery D. Axillary lymph node E. Long thoracic nerve</p>
34.	<p>A 53 year old man has become increasingly short of breath in the 3 hours since returning to the ward after a thyroidectomy. He has a temperature of 37.5°C, heart rate of 110 beats/minute, blood pressure of 90/60 mmHg, respiratory rate of 35 breaths/minute, and SaO₂ of 89% on air. There are harsh inspiratory upper airway sounds and reduced air entry bilaterally. What is the SINGLE most appropriate course of action?</p> <p>A. Cut SC sutures B. Adrenaline C. Low molecular weight heparin D. Oxygen 15L via non-rebreather mask E. Salbutamol Nebulizer</p>
35.	<p>A 31 year old woman has an injury to the right external branch of superior laryngeal nerve during a thyroid surgery. What is the SINGLE most likely symptom in this patient?</p> <p>A. Stridor B. Hoarseness C. Aphonia D. Dysphonia E. Aphasia</p>
36.	<p>A 28 year old woman who is 8 weeks pregnant has central abdominal pain for the last 36 hours. The pain is now colicky. She reports no vaginal bleeding. She has vomited once and has had an episode of loose stools earlier in the day. She has a temperature of 37.9°C. On examination, she looks ill, and has rebound tenderness in the right iliac fossa. What is the SINGLE most likely diagnosis?</p>



	<p>A. Salpingitis B. Appendicitis C. Ectopic pregnancy D. Ovarian torsion E. Uterine fibroid</p>
37.	<p>A 40 year old manual worker presents with a swelling in the groin. He says he noticed the appearance earlier today and it is accompanied by pain. On examination, a mass is found to be just above and lateral to the pubic tubercle. On examination, the mass is reducible and impulse on coughing is seen. What is the SINGLE most likely diagnosis?</p> <p>A. Inguinal hernia B. Femoral artery aneurysm C. Femoral hernia D. Incarcerated hernia E. Strangulated hernia</p>
38.	<p>A 58 year old lady with a medical history of type 1 diabetes mellitus has a tender lump near the anal opening which has been increasing in size for the last 3 weeks. She complains of constipation and throbbing pain when she sits down. She has a temperature of 38.1°C. The mass is seen to be swollen, erythematous and tender at the edge of the anus. What is the SINGLE most appropriate management?</p> <p>A. Incision, drainage and antibiotics B. Intravenous antibiotics only C. Rubber band ligation D. Sclerotherapy E. Glycerol suppositories</p>
39.	<p>A 39 year old man has a painful palpable mass for the past 6 weeks near his anus. On examination, the lump is warm, erythematous, and tender. He has a history of diabetes. What is the SINGLE most likely diagnosis?</p> <p>A. Anal fissure B. Perianal abscess C. Perianal haematoma D. Anogenital warts E. External haemorrhoids</p>
40.	<p>2 hours after an appendectomy, a 33 year old man complains of feeling unwell, having abdominal pain. He has a pulse of 128 beats/minute, a blood pressure of 88/55 mmHg and a respiratory rate of 32 breaths/minute. What is the SINGLE most likely reason for his observations?</p> <p>A. Intra-abdominal bleed B. Anastomotic leak C. Sepsis D. Intestinal obstruction</p>



	E. Pulmonary embolism
41.	<p>A 32 year old man was involved in a road traffic accident and was operated for abdominal trauma where a splenectomy was performed. On the second day post-op, his abdomen becomes gradually distended and tender and he complains of epigastric fullness. He feels nauseous and vomited twice in the morning. His blood pressure has now dropped to 70/40 mmHg and he has a pulse rate of 140 beats/minute. A nasogastric tube was inserted and the patient was almost immediately relieved. What is the SINGLE most likely diagnosis?</p> <p>A. Acute gastric dilatation B. Primary haemorrhage C. Reactionary haemorrhage D. Secondary haemorrhage E. Subphrenic abscess</p>
42.	<p>An 66 year old woman is found to be anaemic. As part of her exam, she had a barium enema which reveals a mass lesion in the right side of the large intestine. What is the SINGLE most likely diagnosis?</p> <p>A. Sigmoid volvulus B. Anal fissure C. Sigmoid carcinoma D. Diverticular disease E. Caecal carcinoma</p>
43.	<p>A 35 year old diabetic man on insulin is booked in for an elective hernia operation. What is the SINGLE most appropriate management plan for his diabetes on the day of the surgery?</p> <p>A. Stop insulin and start metformin on the day of surgery B. Administer insulin and saline pre-operatively C. Administer Intravenous insulin, dextrose and saline pre-operatively D. Administer insulin as usual E. Stop insulin for the duration of the operation</p>
44.	<p>A 29 year old woman presents with a single 2 cm by 2 cm lump in the breast. The lump is mobile and hard in consistency. On examination, the mass is painless and there is also a palpable lymph node in the axilla. An ultrasound was performed which shows a mass with hypoechoic, ill-defined, spiculated, and microlobulated margins. A mammogram shows ill-defined, spiculate borders. A fine needle aspiration cytology was performed which results came back as normal. What is the SINGLE most appropriate investigations to confirm the diagnosis?</p> <p>A. Repeat fine needle aspiration cytology B. Magnetic resonance imaging C. Punch biopsy D. Genetic testing and counselling E. Core biopsy</p>



45.	<p>A 43 year old diabetic, who takes regular sitagliptin, has a planned elective hernia repair surgery. What is the SINGLE most appropriate advice to give regarding the perioperative management of his diabetic medication?</p> <p>A. Start normal saline infusion and dextrose at time of admission B. Start subcutaneous insulin C. Omit sitagliptin 3 days prior to the procedure D. Continue medication with no change E. Omit sitagliptin on the day of the procedure</p>
46.	<p>A 45 year old man is scheduled to have an elective anterior resection of the rectum. What is the SINGLE most appropriate antibiotic prophylaxis regimen?</p> <p>A. Oral antibiotics a week before surgery B. Oral antibiotic 2 days before surgery and continue for 5 days after surgery C. Intravenous antibiotics the night before surgery D. Intravenous antibiotics 3 days before surgery E. Intravenous antibiotics at the induction of anaesthesia</p>
47.	<p>A 48 year old man complains of rectal bleeding and loss of weight. He has a mass in left iliac fossa. What is the SINGLE most likely diagnosis?</p> <p>A. Caecal carcinoma B. Carcinoma of sigmoid colon C. Carcinoma of transverse colon D. Ulcerative colitis E. Volvulus</p>
48.	<p>A 32 year old man has undergone an open appendectomy earlier today. In theatre, a gangrenous appendix was found. What is the SINGLE most appropriate pain relief to administer post operatively?</p> <p>A. Patient controlled analgesia with morphine B. Oral tramadol C. Oral morphine D. Rectal diclofenac E. Intramuscular morphine</p>



SAMPLE

GENETICS



1.	<p>A 4 year old child has progressive muscle weakness and frequent falls. He has a waddling gait when he attempts to run. He is unable to hop or jump. His motor milestones seemed to be delayed. What is the SINGLE most likely diagnosis?</p> <p>A. Duchenne muscular dystrophy B. Becker's muscular dystrophy C. Polymyositis D. Lambert-Eaton syndrome E. Polymyalgia rheumatic</p>
2.	<p>A 7 year old boy is brought by his mother to the GP clinic with another chest infection. He has had multiple respiratory infections in the past. On examination, he is noted to be below the 5th percentile for weight and height. He is also noted to have greasy stools. What is the SINGLE most likely diagnosis?</p> <p>A. Cystic Fibrosis B. Severe combined immunodeficiency C. Primary T cell immunodeficiency D. Primary B cell immunodeficiency E. Malabsorption</p>
3.	<p>An 8 year old boy is clinically obese. As a baby he was floppy and difficult to feed. He now has learning difficulties and is constantly eating despite measures by his parents to hide food out of his reach. What is the SINGLE most likely diagnosis?</p> <p>A. Cushing's syndrome B. Congenital hypothyroidism C. Prader Willi syndrome D. Laurence moon biedl syndrom E. Down's syndrome</p>



4.	<p>A 11 year old has increased laxity of joints and hyperelastic skin. He is noted to have mild spinal curvature and a blue sclera. What is the SINGLE most likely diagnosis?</p> <p>A. Fragile X syndrome B. Prader-willi syndrome C. DiGeorge syndrome D. Marfan's syndrome E. Ehlers-Danlos syndrome</p>
5.	<p>A 44 year old woman presents with memory loss, poor concentration and inability to recognize household objects. She has right-handed involuntary writhing movement which has just recently started. She reports occasional difficulty in walking. There is a strong family history with similar symptoms. What is the SINGLE most likely diagnosis?</p> <p>A. Friedreich's ataxia B. Wilson's disease C. Huntington's disease D. Motor neuron disease E. Charcot-Marie-Tooth disease</p>
6.	<p>A 59 year old man has shown a change in his mood and personality over a 9 month period. He has subsequently developed difficulty with memory and concentration, and then progressive fidgety movements of his limbs and facial musculature. By the time of medical assessment he has frank choreiform movements and a mini-mental state exam of 21/30. He was adopted and therefore no information on his family history is available. He has 3 adult children (27, 30, 33) of whom the 2 youngest are asymptomatic. However, the oldest son has recently been investigated by the neurology department for slightly erratic behavior and fidgety restless movements of both legs. Based on the likely clinical diagnosis, what is the SINGLE most likely mode of inheritance?</p> <p>A. Autosomal dominant inheritance with anticipation B. Autosomal dominant with variable penetrance C. Autosomal recessive D. X-linked E. Mitochondrial disorder</p>
7.	<p>A 30 year old man and wife presents to the reproductive endocrine clinic as they have been trying to conceive for the last 3 years. They have intercourse 3 times a week and do not use contraception. The man is tall and has bilateral gynecomastia. Examination of the testes reveals bilateral small, firm testes. Which is the SINGLE best investigation that could lead to a diagnosis?</p> <p>A. Computed tomography scan of the pituitary gland B. Chromosomal analysis C. Serum gonadotropin levels D. Serum testosterone levels E. Follicle-stimulating hormone (FSH) and luteinising hormone (LH) levels</p>



8.	<p>A 5 year old boy has recurrent chest infections and offensive stool. On physical examination, he has finger clubbing. What is the SINGLE most appropriate initial investigation?</p> <p>A. Endomysial antibody (IgA) B. Sweat test C. Barium meal D. anti-gliadin antibody (IgA or IgG) E. Glucose tolerance test</p>
9.	<p>A 4 year old boy presents to clinic after an incidental finding of elevated creatine kinase. The mother gives a history of the boy walking at 18 months and sluggish when he runs, climbs stairs, rising from a sitting position, or riding his tricycle. Compared to his older sister at the same age, he has difficulty holding onto small objects. What is the SINGLE most likely diagnosis?</p> <p>A. Duchenne muscular dystrophy B. Becker's muscular dystrophy C. Myotonic muscular dystrophy D. Spinal muscular atrophy type 1 E. Lambert-Eaton syndrome</p>
10.	<p>A mother has a child with 17-alpha-hydroxylase deficiency. She is now pregnant for the second time. What are the risks of her unborn child having congenital adrenal hyperplasia?</p> <p>A. 1:1 B. 1:2 C. 1:4 D. 1:8 E. 2:3</p>
11.	<p>A 3 year old boy presents with rectal prolapse. He is noted to be below the 5th percentile for weight and height. His mother is also concerned because he has a foul-smelling bulky stool that "floats." She also state that the child has developed a repetitive cough over the last few months. What is the SINGLE most appropriate initial investigation?</p> <p>A. Endomysial antibody (IgA) B. Sweat test C. Barium meal D. anti-gliadin antibody (IgA or IgG) E. Glucose tolerance test</p>
12.	<p>A 33 year old mother of a child with cystic fibrosis is concerned of her next baby also having cystic fibrosis. She is with the same partner and they both are completely healthy. What is the SINGLE most likely probability of their future child having cystic fibrosis?</p> <p>A. 1:2 B. 1:4 C. 1:8</p>



	D. 1:1 E. No risk
13.	<p>A 7 year old male child is brought to the paediatricians office by his concerned mother. She states that he is unable to climb stairs and that he is being bullied in school as he cannot run with his classmates on the playground. Upon examination, it is noted that he has diminished deep tendon reflexes and hypertrophy of his calf muscles bilaterally. What is the SINGLE most likely diagnosis?</p> <p>A. Duchenne muscular dystrophy B. Guillain Barre Syndrome C. Becker's muscular dystrophy D. Polymyositis E. Motor neurone disease</p>
14.	<p>A 32 year old female has café au lait spots seen at birth. Axillary freckles started to appear in her childhood. What is the probability of her child having the same condition as she has?</p> <p>A. 1:2 B. 1:4 C. 1:16 D. 3:4 E. No genetic link</p>
15.	<p>A 44 year old lady who has polycystic kidney disease is concerned because her 38 year old brother recently died of an intracranial insult. She knows he was not hypertensive. What was the SINGLE most likely cause of her brother's death?</p> <p>A. Subdural haematoma B. Subarachnoid haemorrhage C. Cerebral infarct D. Epidural haematoma E. Dehydration</p>
16.	<p>A 15 year old girl presents with primary amenorrhoea. She has a short stature and a broad chest with widely spaced nipples. What is the SINGLE most likely diagnosis?</p> <p>A. Down's syndrome B. Klinefelter's syndrome C. Fragile X syndrome D. Turner syndrome E. Normal physiological findings</p>
17.	<p>A 42 year old woman is 16 week pregnant. She was late in booking her antenatal appointments and missed her first trimester scan. She is extremely worried about an abnormal chromosomal anomaly in her unborn baby as her first child was born with Down Syndrome. What is the SINGLE most definitive investigations at this stage?</p>



	<p>A. Amniocentesis B. Chorionic Villous Sampling C. Parents karyotyping D. Transvaginal ultrasound E. Preimplantation genetic testing</p>
18.	<p>The parents of two children would like to try for another child. Their first child was diagnosed with cystic fibrosis and their second child is healthy. Both the parents are healthy. What is the chances of their next child being a carrier?</p> <p>A. 1:4 B. 1:2 C. 2:3 D. 1:8 E. 1:16</p>
19.	<p>A 28 year old lady with a family history of cystic fibrosis comes for genetic counselling and wants the earliest possible diagnostic test for cystic fibrosis for the baby she is planning. She is planning to get pregnant in the near future and she is not in favor of termination. What is the SINGLE most appropriate test to recommend?</p> <p>A. Chorionic villous sampling B. Amniocentesis C. Preimplantation genetic diagnosis D. Chromosomal karyotyping E. Non-invasive prenatal testing</p>
20.	<p>A 26 year old tall and slender man and his wife has been trying to conceive for the past 3 years. He has been investigated for primary infertility and his recent semen analysis is consistent with azoospermia. What is the SINGLE most appropriate investigations to be performed?</p> <p>A. Testosterone B. Luteinising hormone (LH) C. Follicle-stimulating hormone (FSH) D. Estradiol E. Karyotyping</p>
21.	<p>A patient who presents with bilateral cerebellopontine tumors, bilateral sensorineural hearing loss and café au lait spots is pregnant. What are the chances of her child having the same condition?</p> <p>A. 1:1 B. 1:2 C. 1:4 D. 3:4 E. 1:8</p>



SAMPLE

HAEMATOLOGY



1.	<p>A 67 year old man with history of weight loss complains of hoarseness of voice. Chest X-ray reveals opacity in the right upper mediastinum. He denies any history of difficulty breathing. What is the SINGLE most appropriate investigation?</p> <p>A. Laryngoscopy B. Bronchoscopy C. Lymph node biopsy D. Bronchoalveolar lavage E. Barium swallow</p>
2.	<p>A 75 year old male presents with enlarged cervical nodes. He has several recurrent infections over the last year. His conjunctiva is pale and he feels weak. What is the SINGLE most likely cell type to be found on a blood smear of this patient?</p> <p>A. Granulocyte without blast cells B. Myofibroblasts C. Plasma cells D. Mature lymphocytes E. Sickling of cells</p>
3.	<p>A 29 year old woman at 28 weeks gestation comes in for an antenatal visit. Her blood tests reveal:</p> <p>Hb: 11.0g/dL MCHC: normal range MHC: normal</p> <p>What is the SINGLE best explanation for these blood results?</p> <p>A. Iron deficiency anaemia B. Folate deficiency anaemia C. Anaemia of chronic disease</p>



	D. Normal physiological phenomenon E. Autoimmune anaemia
4.	<p>A 50 year old woman is investigated for anaemia. She has no past medical history of note. Clinical examination reveals massive splenomegaly associated with pale conjunctivae. A full blood count was requested and results show:</p> <p>Haemoglobin 105 g/L White cell count 62 x 10⁹/L Platelets 803 x 10⁹/L</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Chronic lymphocytic leukaemia B. Chronic myeloid leukaemia C. Myeloma D. Acute myeloid leukaemia E. Malaria</p>
5.	<p>A 51 year old man complains of headache and pruritus. He had a deep vein thrombosis recently. Recent blood report shows the following:</p> <p>Haemoglobin 192 g/L White cell count 15 x 10⁹/L Platelets 809 x 10⁹/L</p> <p>Erythropoietin was found to be low. What is the SINGLE most likely diagnosis?</p> <p>A. Myelofibrosis B. Polycythaemia rubra vera (PRV) C. Essential thrombocythemia D. Chronic myeloid leukaemia (CML) E. Chronic lymphocytic leukaemia (CLL)</p>
6.	<p>A 14 year old child has recurrent throat infections. He feels tired and lethargic all the time. Blood results show:</p> <p>Hb 7.2g/dl WCC 6 x 10⁹/L Platelets 95 x 10⁹/L.</p> <p>Blood film shows blast cells. What is the SINGLE most likely diagnosis?</p> <p>A. Acute lymphoblastic leukaemia (ALL) B. Acute myeloid leukaemia (AML) C. Chronic myeloid leukaemia (CML) D. Chronic lymphocytic leukaemia (CLL)</p>



	E. Hodgkin's lymphoma
7.	<p>A 53 year old lady has been suffering from chronic rheumatoid arthritis and is on methotrexate. Blood results show:</p> <p>Haemoglobin 83 g/L Mean cell volume (MCV) 70 fL</p> <p>What is the SINGLE most likely cause?</p> <p>A. Haemorrhoids B. Anaemia of chronic disease C. Menorrhagia D. Folate deficiency E. B12 deficiency</p>
8.	<p>A 17 year old girl has prolonged bleeding after a routine dental extraction. Her father and paternal grandmother have experience similar problems. What is the SINGLE most likely mode of inheritance?</p> <p>A. Autosomal co-dominant B. Autosomal dominant C. Autosomal recessive D. X-linked E. Mitochondrial gene defect</p>
9.	<p>A 51 year old vegan presents with complaints of peripheral paresthesia, mild shortness of breath and fatigue. Examination reveals that she has angular stomatitis and a sore red tongue. What is the SINGLE most likely cell type to be seen on a blood film?</p> <p>A. Numerous blast cells B. Oval macrocytic red cells C. Spherocytes D. Microcytic hypochromic red cells E. Heinz bodies</p>
10.	<p>A 51 year old man complains of lethargy tiredness and pruritus. The pruritus is worse after he takes a hot shower. He also says that he feels a burning sensation in his fingers and toes. Splenomegaly was found during an abdominal examination. His medical history is significant for gout. What is the SINGLE most likely diagnosis?</p> <p>A. Polycythaemia rubra vera (PRV) B. Myelofibrosis C. Rheumatoid arthritis D. Scleroderma E. Systemic lupus erythematosus</p>



11.	<p>A 63 year old man presents with extreme thirst that despite drinking fluids he still feels thirsty. He has been having a back ache for the last 4 weeks that is getting worse and feels tired all the time. His serum calcium was found to be elevated. A blood film was taken. What is the SINGLE most likely finding to be seen on a blood film?</p> <p>A. Basophilic stippling B. Howell Jolly bodies C. Heinz bodies D. Trophozoites E. Rouleaux formation</p>
12.	<p>A 5 year old boy has swelling at the knee after falling on the ground with rashes on his buttocks. His blood tests show:</p> <p>Haemoglobin 119 g/L White cell count $8 \times 10^9/L$ Platelets $259 \times 10^9/L$ Prothrombin time 12 seconds Activated partial thromboplastin time 61 seconds</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Haemolytic uraemic syndrome B. Haemophilia C. Henoch-Schönlein purpura D. Osler weber rendu syndrome E. Von-Willebrand disease</p>
13.	<p>A 54 year old woman is diagnosed with deep vein thrombosis after taking a long haul flight. She is started on warfarin. What is the target INR for her?</p> <p>A. <1 B. 1 - 2 C. 2 - 3 D. 3 - 4 E. 2 – 5</p>
14.	<p>A 13 year old girl has has mucosal bleeding and petechial rashes. She has been feeling tired lately. She looks pale. A blood count shows:</p> <p>Haemoglobin 74 g/L White cell count $1.9 \times 10^9/L$ Neutrophils $0.1 \times 10^9/L$ Platelets $24 \times 10^9/L$</p>



	<p>Blood film morphology was unremarkable. Reticulocytes are absent. A bone marrow aspirate shows a gross reduction in all haemopoietic tissue that is replaced by fat spaces. What is the SINGLE most likely underlying diagnosis?</p> <p>A. Pernicious anaemia B. Chronic myeloid leukaemia C. Aplastic anaemia D. Acute myeloid leukaemia E. Acute lymphoblastic leukaemia</p>
15.	<p>A 51 year old male presents with malaise and tiredness. On physical exam, his spleen is noted to be approaching his right iliac fossa. No lymphadenopathy was noticed. What is the SINGLE most likely cell type to be seen on a blood smear?</p> <p>A. Helmet shaped cell B. Sickle cell C. Granulocyte without blast cells D. Blast cells E. Target red cells</p>
16.	<p>A 25 year old Greek man presents with dark red urine hours after eating fava beans. He is now very ill and has signs of shock. Spherocytes and RBC fragments are seen on blood film. What is the SINGLE most likely diagnosis?</p> <p>A. Hereditary spherocytosis B. Glucose-6-phosphate dehydrogenase (G6PD) deficiency C. Alpha thalassemia D. Beta thalassemia E. Hereditary sideroblastic anaemia</p>
17.	<p>A 63 year old man presents with back pain, polydipsia and polyuria which have been present for the last couple of weeks. He complains of being tired lately. His previous full blood count shows a normochromic, normocytic anaemia. What is the SINGLE most appropriate test that would lead to a diagnosis?</p> <p>A. Bone marrow biopsy B. Vitamin D levels C. Liver function test D. CT scan E. Renal biopsy</p>
18.	<p>A 36 year old female presents with a petechial rash and menorrhagia. Her physical examination is completely normal and she has no other complaints. A full blood count was done and reveals:</p> <p>Hb: 13.3g/dL WBC: $9 \times 10^9/L$ Platelets: $90 \times 10^9/L$</p>



	<p>What is the SINGLE most likely diagnosis?</p> <p>A. Polycythaemia rubra vera B. Thrombocytopaenia C. Thrombocytosis D. Chronic myeloid leukaemia E. Hyposplenism</p>
19.	<p>A 26 year old man has recently returned from new york. He has noticed weight loss, and has been having night sweats that is usually drenching. He has a temperature of 37.6°C and cervical lymphadenopathy. An enlarged spleen was seen on abdominal examination. What is SINGLE most likely the diagnosis?</p> <p>A. Tuberculosis B. Lymphoma C. Bronchial carcinoma D. Bronchitis E. plaMycoplasma pneumonia</p>
20.	<p>A 50 year old man has dizziness after exercising. He also complains of itching after a hot shower and says that he feels burning around his fingers. Abdominal examination is significant for splenomegaly. What is the SINGLE most likely diagnosis?</p> <p>A. Scleroderma B. Lymphoma C. Polycythemia D. Scabies E. Eczema</p>
21.	<p>A 4 year old boy has a cough and arthritis followed by rash on legs which are non-blanching on glass test. He has no history of a fever. His blood tests show:</p> <p>Haemoglobin 120 g/L White cell count 6.3 x 10⁹/L Platelets 259 x 10⁹/L Prothrombin time 13 seconds Activated partial thromboplastin time 35 seconds</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Meningitis septicemia B. Haemophilia C. Henoch-Schönlein purpura D. Idiopathic thrombocytopenic purpura E. Thrombotic thrombocytopenic purpura</p>



22.	<p>A 30 year old woman complains of tiredness, lethargy and constipation. On inspection, she has dry coarse skin, hair loss and cold peripheries. On examination, a diffuse and lobulated goitre can be palpated on her anterior neck. A full blood count and peripheral smear is done which shows a macrocytic anaemia. What is the SINGLE most likely diagnosis?</p> <p>A. Cushing's Syndrome B. Hyperthyroidism C. Crohn's disease D. Addison's disease E. Pernicious anaemia</p>
23.	<p>A 21 year old man presents with mild jaundice.</p> <p>Haemoglobin 75 g/L Reticulocytes 7%</p> <p>There are spherocytes seen on the blood film. He has no past medical history of any significance. What is the SINGLE most appropriate investigation?</p> <p>A. G6PD enzyme assay B. Direct coombs test C. Indirect coombs test D. Bone marrow biopsy E. Sickle solubility test</p>
24.	<p>A 40 year old female, chronic heavy smoker has a haemoglobin of 189 g/L. What is the SINGLE most useful hormone level to test for to help establish a diagnosis?</p> <p>A. Aldosterone B. Cortisol C. Erythropoietin D. T4 E. TSH</p>
25.	<p>A 6 year old boy is brought to the hospital by his mother with bleeding from his gums and nose. His mother complains that he has been having recurrent sore throats that come and go in last couple of months.. Pale conjunctivae is noticed on examination. What is the SINGLE most likely single cell type associated with his diagnosis?</p> <p>A. Clumped platelets B. Microcytes C. Granulocyte without blast cells D. Blast cells E. Mature lymphocytes</p>



26.	<p>A 55 year old man complains of headache and visual disturbances. He has a history of hypertension. He also reports itching after a hot bath and burning sensation in his finger and toes. He is noted to have mass in the left upper quadrant. Blood report shows the following:</p> <p>Haemoglobin 202 g/L White cell count $19 \times 10^9/L$ Platelets $502 \times 10^9/L$ Erythropoietin is normal</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Myelofibrosis B. Polycythaemia rubra vera (PRV) C. Essential thrombocythemia D. Chronic myeloid leukaemia (CML) E. Chronic lymphocytic leukaemia (CLL)</p>
27.	<p>A 42 year old woman with septicaemia suddenly develops purpura all over her legs and arms. Her blood tests show:</p> <p>Haemoglobin 118 g/L White cell count $15.8 \times 10^9/L$ Platelets $28 \times 10^9/L$</p> <p>Prothrombin time, and activated partial thromboplastin time are prolonged. D-dimers were elevated. What is the SINGLE most likely diagnosis?</p> <p>A. Pulmonary embolism B. Disseminated intravascular coagulation C. Deep vein thrombosis D. Factor V Leiden mutation E. Warfarin interaction</p>
28.	<p>A 7 year old boy has recurrent episodes of spontaneous bleeding into his knee and elbow joints. Mild joint deformity us noted. His father has a similar illness. Factor VIII/XI assay results show a decrease in factor VIII. What is the SINGLE most appropriate management?</p> <p>A. Desmopressin B. Recombinant factor IX C. Heparin D. Infusion of platelet concentrates E. Vitamin K</p>
29.	<p>A 22 year old man is admitted to the hospital with lethargy. His medical history includes hereditary spherocytosis. His blood tests show:</p> <p>Haemoglobin 51 g/L</p>



	<p>Reticulocytes 0.4%</p> <p>What is the SINGLE most likely cause of his low haemoglobin and low reticulocytes?</p> <p>A. Parvovirus B19 infection B. Autoimmune haemolytic anaemia C. Splenic sequestration crisis D. Haemolytic transfusion reactions E. Recent antibiotic treatment</p>
30.	<p>A 33 year old man complains of lethargy tiredness and pruritus. A diagnosis of polycythaemia vera was made. What is the SINGLE most appropriate management?</p> <p>A. Phlebotomy B. Splenectomy C. Indomethacin D. Heparin E. Warfarin</p>
31.	<p>A 75 year old man presents with back pain and lethargy. Investigations were carried out. A bone marrow biopsy reports as having abundance of plasma cells. What is the SINGLE most likely diagnosis?</p> <p>A. Multiple myeloma B. Ankylosing spondylitis C. Amyloidosis D. Leukaemia E. Myelofibrosis</p>
32.	<p>A 22 year old Greek man presents with rapid symptoms of anaemia and jaundice following treatment of malaria. He is noted to have Heinz bodies on a blood film. What is the SINGLE most likely diagnosis?</p> <p>A. Glucose-6-phosphate dehydrogenase (G6PD) deficiency B. Anaemia of chronic disease C. Pernicious anaemia D. Thalassemia trait E. Hereditary sideroblastic anaemia</p>
33.	<p>A 35 year old man has fatigue, night sweats and a mild fever for the last month. Examination reveals painless cervical lymphadenopathy. Splenomegaly is noted on abdominal examination. He has significant weight loss. What is the SINGLE most likely diagnosis?</p> <p>A. Non-Hodgkin lymphoma B. Polycythemia C. Iron deficiency anaemia D. Toxoplasmosis</p>



	E. Cytomegalovirus infection
34.	<p>A 26 year old Greek man has recently recovered from a haemolytic episode 6 weeks ago. The haemolytic episode occurred a day after he ate a traditional Greek dish. Glucose-6-phosphate dehydrogenase deficiency is suspected. What is the SINGLE most definitive diagnostic test?</p> <p>A. Osmotic fragility test B. G6PD enzyme assay C. Heinz bodies seen on blood film D. Bite cells seen on blood film E. Decreased haptoglobins and increased reticulocytes</p>
35.	<p>A 29 year old man has back pain and abdominal pain following treatment of malaria. His urine has become dark and his eyes have a yellowish tinge. He has had gallstones in the past. His past medical history includes jaundice when he was a neonate. What is the SINGLE most likely diagnosis?</p> <p>A. Glucose-6-phosphate dehydrogenase (G6PD) deficiency B. Allergy to antimalaria medication C. Steven-Johnson syndrome D. Peptic ulcer disease E. Beta thalassemia</p>
36.	<p>A 10 year old boy is brought to the hospital with a rash over his buttocks associated with abdominal pain and vomiting. He is accompanied by his mother and stepfather. His mother had left him for the weekend with the stepfather and she was called to come back from holiday as he started to have blood in his urine with the rash. Social services have been notified. What is the most likely diagnosis?</p> <p>A. Non accidental injury B. Idiopathic thrombocytopenic purpura C. Henoch-Schönlein purpura D. Acute lymphoblastic leukaemia (ALL) E. Haemolytic uraemic syndrome</p>
37.	<p>A 6 year old boy has recurrent episodes of spontaneous bleeding into his knee joints. His father has a similar illness. Factor VIII was found to be decreased on a blood test. What is the SINGLE most likely diagnosis?</p> <p>A. Haemophilia A B. Haemophilia B C. Von Willebrand's disease D. Sickle cell anaemia E. Thalassemia</p>
38.	<p>A 11 year old boy has an upper respiratory tract infection followed by a low grade fever with erythematous macular rash, especially on the back of the legs. A few hours later, the macules</p>



	<p>evolve into purpuric lesions that are slightly raised and do not blanch on a glass test. He also complains of a headache and joint stiffness. His blood tests show:</p> <p>Haemoglobin 123 g/L White cell count $3.3 \times 10^9/L$ Platelets $211 \times 10^9/L$</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Meningitis B. Sepsis C. Henoch-Schönlein purpura D. Idiopathic thrombocytopenic purpura E. Thrombotic thrombocytopenic purpura</p>
39.	<p>A 65 year old man presents with back pain. Abdominal examination reveals splenomegaly</p> <p>Blood report shows the following:</p> <p>Haemoglobin 102 g/L White cell count $122 \times 10^9/L$ Platelets $102 \times 10^9/L$ ESR 25</p> <p>He has been found to have Philadelphia chromosome on cytogenetic analysis. What is the SINGLE most likely diagnosis?</p> <p>A. Acute lymphoblastic leukaemia (ALL) B. Acute myeloid leukaemia (AML) C. Chronic myeloid leukaemia (CML) D. Chronic lymphocytic leukaemia (CLL) E. Lymphoma</p>
40.	<p>A 20 year old man presents with develops low back pain, shortness of breath and dizziness 3 days after taking primaquine to treat malaria. His past medical history is significant for neonatal jaundice. What is the SINGLE most likely diagnosis?</p> <p>A. Haemolytic anaemia B. Pulmonary embolism C. Allergy to primaquine D. Thalassaemia trait E. Hereditary sideroblastic anaemia</p>
41.	<p>A 4 year old boy is presents with haemarthrosis following a minor fall. His father and uncle have similar bleeding problems throughout their lives. What is the SINGLE most likely mode of inheritance?</p>



	<p>A. Autosomal co-dominant B. Autosomal dominant C. Autosomal recessive D. X-linked E. Mitochondrial gene defect</p>
42.	<p>A 50 year old man presents fatigue, weight loss and complains of abdominal fullness. An abdominal examination reveals splenomegaly extending towards the right iliac fossa.</p> <p>Blood report shows the following:</p> <p>Haemoglobin 82 g/L White cell count $102 \times 10^9/L$ Platelets $160 \times 10^9/L$</p> <p>Philadelphia chromosome was positive on cytogenetic analysis. What is the SINGLE most likely diagnosis?</p> <p>A. Acute lymphoblastic leukaemia (ALL) B. Acute myeloid leukaemia (AML) C. Chronic myeloid leukaemia (CML) D. Chronic lymphocytic leukaemia (CLL) E. Lymphoma</p>
43.	<p>A 30 year old woman presents with complaints of lethargy and frequent infections. Upon examination, massive splenomegaly with no associated lymphadenopathy is observed. A full blood count reveals the following:</p> <p>Hb: 10.2g/dL WBC: $2 \times 10^9/L$ Platelets: $20 \times 10^9/L$</p> <p>What tissue biopsy will you do to prove the diagnosis?</p> <p>A. Liver B. Lymph node C. Spleen D. Bone marrow E. Lung</p>
44.	<p>A 15 year old boy is investigated after he bled excessively following a tooth extraction. He has always noted that he bruises easily with minimal trauma. His blood tests show:</p> <p>Haemoglobin 120 g/L White cell count $7 \times 10^9/L$ Platelets $168 \times 10^9/L$ Prothrombin time 13 seconds</p>



	<p>Activated partial thromboplastin time 81 seconds Bleeding time within normal ranges</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Haemophilia A B. Haemophilia B C. Von willebrand's disease D. Thrombotic thrombocytopenic purpura E. Idiopathic thrombocytopenic purpura</p>
45.	<p>A 15 year old boy has marked pallor and jaundice. He has to receive regular blood transfusions to maintain his haemoglobin above a certain level. His medical history includes diabetes. He has obvious skull bossing and hepatosplenomegaly. What is the SINGLE most likely diagnosis?</p> <p>A. Hereditary spherocytosis B. Glucose-6-phosphate dehydrogenase (G6PD) deficiency C. Alpha thalassemia trait D. Beta thalassemia major E. Hereditary sideroblastic anaemia</p>
46.	<p>A 52 year old female has loss a few litres of blood during a hysterectomy. She is due for a blood transfusion. What is the SINGLE most likely test involved in the preparation of blood transfusion?</p> <p>A. Indirect Coombs test B. Direct Coombs test C. Sickle solubility test D. G6PD enzyme assay E. Osmotic fragility test</p>
47.	<p>A 7 year old boy presents with epistaxis of 2 hour duration. The bleeding has been controlled. His blood tests show:</p> <p>Platelets $219 \times 10^9/L$ Prothrombin time 13 seconds Activated partial thromboplastin time 42 seconds Bleeding time is normal</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Haemophilia B. Von willebrand disease C. Idiopathic thrombocytopenic purpura D. Vitamin K deficiency E. Anatomical defect</p>



48.	<p>A 20 year old woman has had bruising and petechiae for a week. She also reports frequent nose bleeds and menorrhagia but is otherwise well. A blood count showed:</p> <p>Haemoglobin 111 g/L White cell count $6.3 \times 10^9/L$ Platelets $39 \times 10^9/L$</p> <p>What is the single SINGLE most likely diagnosis?</p> <p>A. Acute leukaemia B. Aplastic anaemia C. HIV infection D. Idiopathic thrombocytopenic purpura E. Systemic lupus erythematosus</p>
49.	<p>A 5 year old child has bleeding gums and sore throat for the last 3 months. He feels tired and lethargic all the time. On examination, splenomegaly was noted. Blood results show:</p> <p>Hb 7.8g/dl WCC $3 \times 10^9/L$ Platelets $48 \times 10^9/L$.</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Acute lymphoblastic leukaemia (ALL) B. Acute myeloid leukaemia (AML) C. Chronic myeloid leukaemia (CML) D. Chronic lymphocytic leukaemia (CLL) E. Hodgkin's lymphoma</p>
50.	<p>A 55 year old man presents with significant weight loss, fever and night sweats. Hodgkin's lymphoma was later diagnosed. What type of cell is associated with Hodgkin's lymphoma?</p> <p>A. T-cells B. Reed-Sternberg cells C. B-cells D. Macrophages E. Auer rods</p>
51.	<p>A 12 year old boy has sudden development of purpura 2 weeks after an upper respiratory tract infection. A blood count showed:</p> <p>Haemoglobin 119 g/L White cell count $6.8 \times 10^9/L$ Platelets $35 \times 10^9/L$ Prothrombin time 12 seconds Activated partial thromboplastin time 41 seconds</p>



	<p>Bleeding time 10 minutes</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Idiopathic thrombocytopenic purpura B. Thrombotic thrombocytopenic purpura C. Von Willebrand's disease D. Haemophilia A E. Haemophilia B</p>
52.	<p>A 33 year old woman complains of tiredness for the last 3 months, On routine blood test, she is found to have a haemoglobin of 85 g/L, low mean cell volume, and low ferritin. What is the SINGLE most likely diagnosis?</p> <p>A. Iron deficiency B. Folate deficiency C. Thalassaemia D. Anaemia of chronic disease E. Sideroblastic anaemia</p>
53.	<p>A 36 year old woman has massive bleeding from a venipuncture site. Petechiae was noticed on her skin. Her blood tests show:</p> <p>Haemoglobin 113 g/L White cell count $9.8 \times 10^9/L$ Platelets $48 \times 10^9/L$</p> <p>Prothrombin time, activated partial thromboplastin time and bleeding time are prolonged. Fibrin degradation products were elevated. What is the SINGLE most likely diagnosis?</p> <p>A. Haemophilia B. Disseminated intravascular coagulation C. Idiopathic thrombocytopenic purpura D. Factor V Leiden mutation E. Warfarin overdose</p>
54.	<p>A 62 year old man presents with bone pain at his ribs which have been present for the last couple of weeks. He has been feeling tired lately and finds himself always thirsty. His previous FBC shows a haemoglobin of 9 g/dL. Biochemistry shows calcium levels of 4.0mmol/L and ALP of 118 iu/L. What cell type is most likely to be found in abundance in the bone marrow?</p> <p>A. Plasma cell B. Myeloid cell C. Bence-jones protein D. Megakaryocytes E. Reticulocytes</p>



55.	<p>A 67 year old woman with a history of rheumatoid arthritis presents to her GP's office with complaints of epigastric discomfort, especially after eating. She has been on long term methotrexate and NSAID therapy for her condition. On examination, she appears pale but seems otherwise well. A full blood count reveals the following:</p> <p>Hb: 10.5g/dL MCV, MCH and MCHC are all decreased</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Folate deficiency anaemia B. Vitamin B12 deficiency anaemia C. Haemolytic anaemia D. Aplastic anaemia E. Chronic gastrointestinal bleeding</p>
56.	<p>A 25 year old lady has a chest infection in which she is receiving antibiotics for. She has shortness of breath, feels tired and weak. On examination she looks pale and purpura is seen on her legs. Blood results show the following:</p> <p>Haemoglobin 76 g/L White cell count $1.2 \times 10^9/L$ Neutrophils $0.3 \times 10^9/L$ Platelets $19 \times 10^9/L$ Reticulocytes 1%</p> <p>Blood film morphology was unremarkable. A bone marrow aspirate shows a reduction in haemopoietic cells. What is the SINGLE most likely underlying diagnosis?</p> <p>A. Pernicious anaemia B. Chronic myeloid leukaemia C. Aplastic anaemia D. Acute myeloid leukaemia E. Acute lymphoblastic leukaemia</p>
57.	<p>A 53 year old man presents complaining of weight loss, lethargy, increasing abdominal discomfort and gout for the past year. On examination, spleen is palpated 5 cm below the left costal margin. His blood tests show:</p> <p>Haemoglobin 105 g/L White cell count $202 \times 10^9/L$ Platelets $103 \times 10^9/L$ 85% neutrophils Serum urea 7.0 mmol/L Serum creatinine 151 $\mu\text{mol/L}$ Sodium 140 mmol/L Potassium 4 mmol/L</p>



	<p>Philadelphia chromosome positive</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Chronic myeloid leukaemia B. Chronic lymphocytic leukaemia C. Acute myeloid leukaemia D. Malaria E. Lymphoma</p>
58.	<p>A 90 year old woman is brought to the hospital complaining of back pain and has been referred to the surgeon. She has been saying that her mother is due to visit her today and that somebody must have broken her lower back as she is in agony. Her blood tests show:</p> <p>Haemoglobin 109 g/L Serum urea 7.5 mmol/L Serum creatinine 293 μmol/L Serum calcium 3.02 mmol/l</p> <p>What SINGLE investigations is most likely to lead to a diagnosis?</p> <p>A. Ultrasound KUB B. X-ray Spine C. Intravenous urogram D. Urine protein electrophoresis to look for Bence-Jones Protein E. Mental state exam</p>
59.	<p>A 15 year old girl was admitted with chest infection. She was treated and her symptoms had regressed. She was brought again with fever and the same symptoms a few days later. It was found that all her blood works done in the hospital showed a mild anaemia and thrombocytopenia. What is the SINGLE most likely diagnosis?</p> <p>A. Acute myeloid leukaemia (AML) B. Acute lymphoblastic leukaemia (ALL) C. Aplastic anaemia D. Chronic myeloid leukaemia (CML) E. Chronic lymphocytic leukaemia (CLL)</p>
60.	<p>A 34 year old woman developed a purpuric rash on the back of her legs. She also reports frequent nose bleeds and menorrhagia. A blood count shows:</p> <p>Haemoglobin 119 g/L White cell count $6.8 \times 10^9/L$ Platelets $59 \times 10^9/L$</p> <p>What is the SINGLE most likely diagnosis?</p>



	<p>A. Idiopathic thrombocytopenic purpura B. Thrombotic thrombocytopenic purpura C. Von Willebrand's disease D. Antiphospholipid syndrome E. Henoch-Schönlein purpura</p>
61.	<p>A 21 year old man has episodic right upper quadrant pain. An abdominal ultrasound reveals gallstones. His father had a splenectomy when he was young. His blood tests show:</p> <p>Haemoglobin 91 g/L Mean cell haemoglobin concentration 369 g/L Platelets $250 \times 10^9/L$ White cell count $6.3 \times 10^9/L$</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Hereditary spherocytosis B. Glucose-6-phosphate dehydrogenase (G6PD) deficiency C. Alpha thalassemia D. Beta thalassemia E. Hereditary sideroblastic anaemia</p>
62.	<p>A 7 year old boy has recurrent episodes of spontaneous bleeding into his knee joints and muscles. Factor IX was found deficient. What is the SINGLE most likely diagnosis?</p> <p>A. Haemophilia A B. Christmas disease C. Von willebrand's disease D. Sick cell anaemia E. Thalassaemia</p>
63.	<p>A 66 year old woman is confused, and lethargic. Her son reports gradual confusion over the last 4 months. On examination, she looks pale. Blood test have been done which shows a megaloblastic anaemia. Both B12 deficiency and folate deficiency was diagnosed on further investigation. What is the SINGLE most likely treatment for her anaemia?</p> <p>A. Oral folic acid and start Intramuscular vitamin B12 when folic acid levels are normal B. Intramuscular vitamin B12 and start oral folic acid when vitamin B12 levels are normal C. Oral folic acid only D. Intramuscular vitamin B12 only E. Iron tablets</p>
64.	<p>A 4 year old boy has a history of epistaxis. Prothrombin time, bleeding time, fibrinogen levels and von Willebrand factor are normal. Activated partial thromboplastin time (APTT) was found to be prolonged. His blood tests show:</p> <p>Haemoglobin 112 g/L</p>



	<p>White cell count $5 \times 10^9/\text{L}$ Platelets $250 \times 10^9/\text{L}$</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Haemophilia B. Idiopathic thrombocytopenic purpura C. Sickle cell anaemia D. Haemolytic uraemic syndrome E. Thalassaemia</p>
65.	<p>A 41 year old man has fatigue and palpitations. Physical examination reveals a red sore tongue, angular stomatitis and koilonychia. His blood tests show:</p> <p>Haemoglobin 85 g/L Mean cell volume 75 fL</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Folate deficiency B. Vitamin B12 deficiency C. Iron deficiency D. Vitamin E deficiency E. Haemolytic anemia</p>
66.	<p>A 52 year old lady has been suffering from chronic rheumatoid arthritis and is on methotrexate and naproxen. Blood results show:</p> <p>Haemoglobin 83 g/L Mean cell volume (MCV) 70 fL</p> <p>What is the SINGLE most likely cause?</p> <p>A. Haemorrhoids B. Gastrointestinal haemorrhage C. Menorrhagia D. Folate deficiency E. B12 deficiency</p>
67.	<p>A 6 year old child has a history of recurrent mild jaundice that occurs a few days after the onset of a fever. Between the episodes he is well. 3 days ago, he had a chest infection and his blood results show:</p> <p>Haemoglobin 106 g/L Mean cell haemoglobin concentration 330 g/L</p> <p>Bite cells are seen on blood film. What is the SINGLE most likely diagnosis?</p>



	<p>A. Hereditary spherocytosis B. Glucose-6-phosphate dehydrogenase (G6PD) deficiency C. Thalassemia D. Sickle cell disease E. Congenital storage disorder</p>
68.	<p>A 45 year old woman who is taking medication for the treatment of rheumatoid arthritis presents with dizziness, fatigability and lack of energy. Blood results show:</p> <p>Haemoglobin 80 g/L Mean cell volume (MCV) 106 fL</p> <p>What is the SINGLE most likely cause of her anaemia?</p> <p>A. Steroids B. Chronic disease C. NSAIDs D. Methotrexate E. Leflunomide</p>
69.	<p>A 4 year old boy presents with recurrent episodes of self limiting spontaneous bleeding into his arms and legs that occurs with minimal trauma. His blood tests show:</p> <p>Prothrombin time 11 seconds Activated partial thromboplastin time 69 seconds Bleeding time is normal</p> <p>His father and uncle suffer from a similar illness. What is the SINGLE most likely diagnosis?</p> <p>A. Haemophilia B. Thalassemia C. Von Willebrand's disease D. Idiopathic thrombocytopenic purpura E. Thrombotic thrombocytopenic purpura</p>
70.	<p>A 22 year old man with sickle cell anaemia has shortness of breath, pallor, headache and lethargy. Infection with parvovirus is suspected. His blood tests show:</p> <p>Haemoglobin 53 g/L</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Aplastic crises B. Haemolytic crisis C. Splenic sequestration crisis D. Vaso-occlusive crises</p>



	E. Acute chest syndrome
71.	<p>A 49 year old lady complains of headaches, dizziness and pruritus. She says that the pruritus is worsen after taking a hot bath. A recent FBC revealed that she has a haemoglobin of 192 g/L. What is the SINGLE most useful test to establish the diagnosis of polycythaemia rubra vera?</p> <p>A. JAK mutation screen B. Leukocyte alkaline phosphatase C. Serum erythropoietin D. Oxygen saturation with arterial blood gas greater than 92% E. Bone marrow aspiration</p>
72.	<p>A 26 year old man develops mild anaemia following a chest infection. A blood film shows Heinz bodies. What is the SINGLE most likely diagnosis?</p> <p>A. Hereditary spherocytosis B. Glucose-6-phosphate dehydrogenase (G6PD) deficiency C. Alpha thalassemia D. Beta thalassemia E. Hereditary sideroblastic anaemia</p>
73.	<p>A 10 year old girl presents with pallor and features of renal failure. She has haematuria as well as proteinuria. The serum urea and creat are elevated. These symptoms started after an episode of bloody diarrhoea 4 days ago. What is the SINGLE most likely diagnosis?</p> <p>A. Thrombotic thrombocytopenic purpura B. Haemolytic uraemic syndrome C. Idiopathic thrombocytopenic purpura D. Henoch-Schönlein purpura E. Acute renal failure</p>
74.	<p>A 55 year old man complains of fatigue. A blood test shows:</p> <p>Haemoglobin 82 g/L Mean cell volume 107 fL</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Folate Deficiency B. Thalassaemia minor C. Iron deficiency anaemia D. Anaemia of chronic disease E. Sickle cell anaemia</p>
75.	<p>A 55 year old HIV positive man presents with painless peripheral lymphadenopathy, fever, night sweats and weight loss. Abdominal examination reveals a enlarged spleen. What is the SINGLE most likely diagnosis?</p>



	<p>A. Hodgkin's lymphoma B. Non-Hodgkin lymphoma C. Acute lymphoblastic leukaemia (ALL) D. Acute myeloid leukaemia (AML) E. Chronic myeloid leukaemia (CML)</p>
76.	<p>A 47 year old man who is on warfarin therapy is due for a hemicolectomy. He is on warfarin for recurrent pulmonary embolism. What advice would you give him prior to his surgery?</p> <p>A. Continue with warfarin B. Continue with warfarin and add heparin C. Stop warfarin and start aspirin D. Stop warfarin and start heparin E. Stop warfarin</p>
77.	<p>A 45 year old man presents with a lump in the posterior triangle of his neck. It has been growing for the past few months. He also complains of having drenching night sweats, unexplained fever and weight loss. Lymph nodes are palpable at the supraclavicular region. What is the SINGLE most likely diagnosis?</p> <p>A. Tuberculosis B. Lymphoma C. Lipoma D. Reactive lymph nodes E. Virchow's nodes</p>
78.	<p>A 40 year old man has a mild fever and feels generally tired. He has marked weight loss over the last 6 months and has a bilateral white, vertically corrugated lesion on the lateral surfaces of the tongue. What is the SINGLE most likely diagnosis?</p> <p>A. C1 esterase deficiency B. Crohn's disease C. HIV disease D. Sarcoidosis E. Sjogren's syndrome</p>
79.	<p>A 51 year old man complains of pruritus and fatigue. A full blood count was done and the following was reported:</p> <p>Haemoglobin 197 g/L White cell count $13 \times 10^9/L$ Platelets $487 \times 10^9/L$</p> <p>JAK2 mutation was found to be positive. What is the SINGLE most likely diagnosis?</p> <p>A. Polycythaemia rubra vera (PRV)</p>



	<p>B. Myelofibrosis C. Acute myeloid leukaemia (AML) D. Chronic myeloid leukaemia (CML) E. Chronic lymphocytic leukaemia (CLL)</p>
80.	<p>A 39 year old pregnant woman who is 36 week gestation has acute abdominal pain and is rushed for immediate C-section. Her blood pressure was reported to be 110/60 mmHg. Her blood tests show:</p> <p>Haemoglobin 101 g/L White cell count $9.8 \times 10^9/L$ Platelets $60 \times 10^9/L$ Activated partial thromboplastin time 61 seconds Prothrombin time 29 seconds Fibrinogen 0.6 g/L Bilirubin $22 \mu\text{mol/L}$</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Pregnancy induced hypertension B. Disseminated intravascular coagulation C. HELLP syndrome D. Acute fatty liver E. Obstetric cholestasis</p>
81.	<p>A 26 year old businessman travelled from New York to the U.K. He presented to A&E three weeks later complaining of drenching night sweats, fever and lymphadenopathy in the neck since returning from his business trip. What is the SINGLE most likely diagnosis?</p> <p>A. Tuberculosis B. Lymphoma C. Aplastic anaemia D. Hereditary Spherocytosis E. Infectious mononucleosis</p>
82.	<p>A 32 year old man presents with fatigue, weakness, weight loss. On examination, cervical lymphadenopathy and splenomegaly is noted. What is the SINGLE most likely diagnosis?</p> <p>A. Haemophilus influenzae infection B. Streptococcal infection C. Toxoplasmosis D. Non-Hodgkin lymphoma E. Pneumocystis infection</p>
83.	<p>A 16 year old boy presents with rash on his buttocks and extensor surface following a sore throat. He complains of joint stiffness and pain. What is the SINGLE most probable diagnosis?</p>



	<p>A. Measles B. Bullous-pemphigoid C. Rubella D. Idiopathic thrombocytopenic purpura (ITP) E. Henoch-Schönlein purpura (HSP)</p>
84.	<p>A 45 year old man presents fatigue. He is otherwise asymptomatic. Blood report shows the following:</p> <p>Haemoglobin 82 g/L White cell count $132 \times 10^9/L$ Platelets $550 \times 10^9/L$</p> <p>There was an increased number of neutrophils, basophils, eosinophils. Peripheral blood smear shows all stages of maturation. What is the SINGLE most likely diagnosis?</p> <p>A. Acute lymphoblastic leukaemia (ALL) B. Acute myeloid leukaemia (AML) C. Chronic myeloid leukaemia (CML) D. Chronic lymphocytic leukaemia (CLL) E. Lymphoma</p>
85.	<p>A 5 year old child presents with fever and pallor. His parents say he always feels tired and is not as active as the other children around his age. On examination, splenomegaly was noted. Blood results show:</p> <p>Hb 7 g/dl WCC $2 \times 10^9/L$ Platelets $42 \times 10^9/L$</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Acute myeloid leukaemia B. Acute lymphoblastic leukaemia C. Chronic myeloid leukaemia D. Chronic lymphocytic leukaemia E. Hodgkin's lymphoma</p>
86.	<p>A 54 year old man has fatigue. A recent blood report shows the following:</p> <p>Haemoglobin 90 g/L Mean cell volume 70 fL Mean cell haemoglobin concentration 290 g/L Serum ferritin 9 $\mu g/L$ Total iron-binding capacity 75 $\mu mol/L$</p> <p>What is the SINGLE most likely diagnosis?</p>



	<p>A. Thalassemia trait B. Hypoparathyroidism C. Hereditary sideroblastic anaemia D. Anaemia of chronic disease E. Iron deficiency anaemia</p>
87.	<p>A 59 year old smoker who recently underwent a hip replacement surgery 2 days ago, has a swollen and tender left leg. The diameter of his left calf is higher than the right calf. Passive movements cause pain. The calf is tender to touch. What is the SINGLE most likely diagnosis?</p> <p>A. Deep vein thrombosis B. Lymphoedema C. Peripheral vascular disease D. Cellulitis E. Superficial thrombophlebitis</p>
88.	<p>A 28 year old man has sudden onset of bone pain. He also begins experiencing bleeding from his gums. Looking retrospectively, he notes a decreased energy level over past weeks. He feels dizzy and has dyspnoea on exertion. He looks pale and has numerous ecchymoses is seen over his body. Hepatosplenomegaly is noted. A full blood count shows WBC of $102 \times 10^9/L$. A bone marrow biopsy shows numerous blasts. What is the SINGLE most likely diagnosis?</p> <p>A. Mantle cell lymphoma B. Infectious lymphocytosis C. Waldenstrom's macroglobulinemia D. Acute myeloid leukaemia (AML) E. Acute lymphoblastic leukaemia (ALL)</p>



SAMPLE

INFECTIOUS DISEASE



1.	<p>A 3 year old child was treated for bacterial meningitis and has recovered from it. She is now afebrile. What is the SINGLE most appropriate investigation to perform?</p> <p>A. CT scan B. EEG C. Blood culture D. Repeat lumbar puncture E. Hearing test</p>
2.	<p>A 7 year old school boy has been diagnosed with meningococcal meningitis. What is the SINGLE most appropriate prophylactic management?</p> <p>A. Prophylactic rifampicin for the family B. Prophylactic IV cefotaxime for family C. Meningococcal vaccine for the family D. Prophylactic benzylpenicillin for family E. No prophylaxis needed</p>
3.	<p>A 35 year old woman has numerous painful blisters and sores on her vulva. She also complains of a flu-like illness with mild fever. What is the SINGLE most appropriate treatment?</p> <p>A. Doxycycline B. Gentamicin C. Penicillin D. Aciclovir E. Interferon</p>
4.	<p>A 36 year old lady with Hodgkin's lymphoma has chemotherapy 8 days ago. She presents with a temperature of 39.5°C and left sided abdominal pain. Her pulse rate is 96 beats/minute. Full blood count was sent and bloods were taken for culture. What is the SINGLE most appropriate next action?</p> <p>A. Wait for results of culture and sensitivity to confirm antibiotic choice B. Wait for results of full blood count to determine further management C. Start oral antibiotics immediately D. Start broad spectrum IV antibiotics immediately E. Start IV fluids only</p>
5.	<p>A 24 year old man presents with a deep penetrating wound on his foot after having stepped on a nail in a field. The wound is deep. He does not remember if he had tetanus vaccines when he was a child. What is the SINGLE most appropriate management to be given?</p> <p>A. Tetanus immunoglobulins only B. Tetanus immunoglobulins and tetanus vaccine C. Complete course of tetanus vaccine D. Tetanus booster vaccine only E. Antibiotic</p>



6.	<p>A 68 year old woman has a sudden onset of pain and loss of hearing in her left ear and unsteadiness when walking. There are small lesions visible on her palate and left external auditory meatus. What is the SINGLE most likely diagnosis?</p> <p>A. Acute mastoiditis B. Cholesteatoma C. Herpes zoster infection D. Oropharyngeal malignancy E. Otitis media with effusion</p>
7.	<p>A 34 year old man from Zimbabwe is admitted with abdominal pain to the emergency department. An abdominal X-ray reveals bladder calcification and evidence of obstructive uropathy. What is the SINGLE most likely causative organism?</p> <p>A. Schistosoma mansoni B. Sarcoidosis C. Leishmaniasis D. Tuberculosis E. Schistosoma haematobium</p>
8.	<p>A 73 year old woman living in a nursing home, presents with rashes on her finger webs and also at her axillary folds. She complains of itching which is more severe at night. What is the SINGLE most appropriate management?</p> <p>A. 0.5% permethrin B. Doxycycline C. 5% permethrin D. Aciclovir E. Malathion 0.5%</p>
9.	<p>A 78 year old nursing home resident has intensely itchy rash. White linear lesions are seen on the wrists and elbows, and red papules are present on his penis. What is the SINGLE most appropriate management?</p> <p>A. Topical permethrin B. Referral to GUM clinic C. Topical betnovate D. Topical ketoconazole E. Topical selenium sulfide hyoscine</p>
10.	<p>A 33 year old lady who works at a nursing home presents with itching. On examination, linear tracks on the wrist are seen. She says that 2 days ago she had come in contact with a nursing home resident with similar symptoms. What is the SINGLE most likely mechanism of itching?</p> <p>A. Infection B. Destruction of keratinocytes</p>



	<p>C. Allergic reaction D. Intolerance E. Decreased histamine</p>
11.	<p>A 14 year old boy has pain and swelling at the angles of the jaw bilaterally. He has a temperature of 38.4°C. He has been complaining of dry mouth and sore ears and he finds it difficult to talk. On examination, his scrotum is also swollen and oedematous and the testes are impalpable. What is the SINGLE most likely diagnosis?</p> <p>A. Acute mastoiditis B. Epididymo-orchitis C. Acute otitis media D. Mumps E. Measles</p>
12.	<p>A 16 year old girl has a sore throat. She feels tired and weak. Oropharyngeal examination shows tonsillar enlargement which is exudative. Her GP prescribed her amoxicillin after which she developed a pruritic rash. What is the SINGLE most likely diagnosis?</p> <p>A. Infectious mononucleosis B. Kawasaki disease C. Lymphoma D. Cytomegalovirus E. Group A streptococcal pharyngitis</p>
13.	<p>A 33 year old man comes from India with cough, fever and enlarged cervical lymph nodes. Histology reveals caseating granulomas found in the lymph nodes. What is the SINGLE most likely diagnosis?</p> <p>A. Lymphoma B. Tuberculous lymphadenitis C. Thyroid carcinoma D. Goiter E. Thyroid cyst</p>
14.	<p>A 24 year old man develops itching worse at night and following a bath. Examination reveals a greyish white linear rash that can be seen on the flexor surface of the wrist and axillary folds. What is the SINGLE most likely diagnosis?</p> <p>A. Scabies B. Polycythaemia C. Urticaria vasculitis D. Atopic eczema E. Lichen planus</p>
15.	<p>A 4 year old child is brought by his parents with a clean wound. He has never been immunised as his parents are worried about the side effects of the immunisations. There are no contraindications to immunisation. What is the SINGLE most appropriate management?</p>



	<p>A. Full course of diphtheria, pertussis, tetanus (DTP) vaccine B. Rabies vaccination C. 1 single injection diphtheria, pertussis, tetanus (DTP) vaccine D. Intramuscular tetanus immunoglobulins E. Antibiotic</p>
16.	<p>A 22 year old lady comes to the hospital with complaints of fever, vertigo and pain in her right ear. On physical examination, there are vesicles visible in her left ear. What is the SINGLE most likely diagnosis?</p> <p>A. Meniere's disease B. Ramsay Hunt syndrome C. Chicken pox D. Acoustic neuroma E. Cellulitis</p>
17.	<p>A 28 year old man presents with a widespread maculopapular rash over his soles and palms. He also has mouth ulcers. He had a penile ulcer which healed six weeks ago. What is the SINGLE most likely organism responsible?</p> <p>A. Mycoplasma genitalium B. Treponema pertenue C. Treponema pallidum D. Lymphogranuloma venereum E. Herpes simplex virus type 2</p>
18.	<p>A 44 year old HIV positive man complains of a two week history of worsening headache, facial weakness and visual hallucinations. He also reports new onset of eye pain. An MRI head reveals multiple ring shaped contrast enhancing lesions. What is the SINGLE most likely causative organism?</p> <p>A. Cytomegalovirus B. Streptococcus C. Toxoplasma gondii D. Herpes Simplex Virus E. Pneumocystis jirovecii</p>
19.	<p>A 49 year old man with known HIV presents with history of cough and shortness of breath. His CD4 count is measured at 350mm³. A chest X-ray was performed and shows lobar consolidation. He has a temperature of 38.1°C, a respiratory rate of 30 breaths/minute and a heart rate of 90 beats/minute. What is the SINGLE most likely causative organism?</p> <p>A. Mycobacterium avium intracellulare B. Cytomegalovirus C. Streptococcus pneumoniae D. Toxoplasmosis E. Pneumocystis jirovecii</p>



20.	<p>A 55 year old immunocompromised patient presents with dysphagia and pain on swallowing. He has a redness, fissuring and soreness at the angle of his mouth. What is the SINGLE causative organism?</p> <p>A. Human herpesvirus 8 B. Molluscum contagiosum C. Cytomegalovirus D. Candida E. Toxoplasma gondii</p>
21.	<p>A 17 year old man has acute pain and earache on the right side of his face. He has a temperature of 39.4°C and has extensive pre-auricular swelling that is tender on palpation bilaterally. He also complains of headache, malaise, and dry mouth. What is the SINGLE most likely diagnosis?</p> <p>A. Acute mastoiditis B. Acute otitis externa C. Acute otitis media D. Mumps E. Otitis media with effusion</p>
22.	<p>A 16 year old girl attends clinic with a sore throat and palatal petechiae. A full blood count was done which shows:</p> <p>Haemoglobin 109 g/L White cell count 25 x 10⁹/L platelets 88 x 10⁹/L</p> <p>A Paul Bunnell test was shown to be positive. What is the SINGLE most likely diagnosis?</p> <p>A. Glandular fever B. Idiopathic thrombocytopenic purpura (ITP) C. Measles D. Rubella E. Thrombotic thrombocytopenic purpura (TTP)</p>
23.	<p>A 35 year old lady presents with recurrent extremely painful ulcers on her vulva. Viral culture and DNA detection using polymerase chain reaction (PCR) of a swab from the ulcer has come back as negative. What is the SINGLE most appropriate investigations which will lead to the diagnosis?</p> <p>A. Anti-HSV antibodies B. Dark ground microscopy of the ulcer C. Treponema pallidum antibody test D. Rapid plasma reagin test E. Venereal Disease Research Laboratory test (VDRL)</p>
24.	<p>A 16 year old girl has had an enlarging mass in the right side of her neck for the past 2 weeks with a sore throat. She feels tired and weak. She has several smaller associated lymph nodes that are</p>



	<p>palpable at her axilla. Oropharyngeal examination shows tonsillar enlargement which is exudative. What is the SINGLE most likely diagnosis?</p> <p>A. Infectious mononucleosis B. Leukaemia C. Lymphoma D. Mumps E. Tuberculosis</p>
25.	<p>A 75 year old woman has weakness of the left side of her face and pain deep within the left ear. The ear pain was paroxysmal at first but after a day it became constant and radiates into the pinna. Now she has hears ringing in her left ear. A mild left hearing loss was noted. There are blisters on the skin of the ear canal and auricle. What is the SINGLE most likely diagnosis?</p> <p>A. Chronic serous otitis media B. Herpes zoster oticus C. Herpes simplex infection D. Viral labyrinthitis E. Bell's palsy</p>
26.	<p>A 74 year old female presents with headache and neck stiffness to the emergency department. Following a lumbar puncture, the patient was started on IV ceftriaxone. CSF culture reports as having listeria monocytogenes. What is the SINGLE most appropriate treatment?</p> <p>A. Add IV amoxicillin B. Change to IV ampicillin + gentamicin C. Add IV ciprofloxacin D. Add vancomycin E. Continue IV ceftriaxone as monotherapy</p>
27.	<p>An 8 year old boy has red, itchy rash on his abdomen, face, arms and legs that has turned into fluid-filled blisters. A few days later they crusted over. What is the main mode of transmission of this condition?</p> <p>A. Airborne B. Direct contact C. Bloodborne D. Vectorborne E. Waterborne</p>
28.	<p>A 3 year old girl presents with a history of fever for 2 days. She is drowsy and had a seizure causing twitching of the right side of the body for 4 minutes. Her respiratory rate is 30 beats/minute, oxygen saturation is 90%, temperature is 38.9°C, and capillary refill time is 2 seconds. A urine dipstick was reported as negative. What is the SINGLE most appropriate investigation?</p> <p>A. Blood culture B. Blood glucose</p>



	<p>C. Chest X-ray D. Urine culture and sensitivity E. CSF analysis</p>
29.	<p>A 40 year old man who recently traveled to Sudan 5 weeks ago presents with dark urine, rigors and a fever. On examination, a tender hepatomegaly was noted. What is the SINGLE most likely diagnosis?</p> <p>A. Malaria B. Brucellosis C. Leptospirosis D. Schistosomiasis E. Ebola</p>
30.	<p>A 46 year old man is being investigated for indigestion. A jejunal biopsy shows deposition of macrophages in the lamina propria-containing granules which stain positive for Periodic Acid-Schiff (PAS). What is the SINGLE most likely diagnosis?</p> <p>A. Bacterial overgrowth B. Coeliac disease C. Tropical sprue D. Whipple's disease E. Small bowel lymphoma</p>
31.	<p>A 33 year old man presents with an erythematous patch on his thigh, which has been enlarging in the last few days. He went for a camping trip a week ago. He has no allergies to any known medication. He is otherwise asymptomatic. What is the SINGLE most appropriate management?</p> <p>A. Erythromycin B. Doxycycline C. Penicillin D. Amoxicillin E. Ceftriaxone</p>
32.	<p>A 36 year old Jewish man presents with multiple purple papular lesions on his face and upper trunk measuring 1-2 cm across. It has been slowly growing over the last couple of years. It is not painful or itchy. What is the SINGLE most likely diagnosis?</p> <p>A. Kaposi's sarcoma B. Hairy leukoplakia C. Cryptosporidium D. Cytomegalovirus infection E. Cryptococcal infection</p>
33.	<p>A 5 year old boy has a sudden onset of fever and bilateral swelling at the angles of the jaw. He has ear pain when he chews. The GP saw him yesterday for bilateral parotid pain and prescribed him paracetamol. He currently has a temperature of 38.8°C. What is the SINGLE most appropriate next step?</p>



	<p>A. Corticosteroids B. Antibiotic C. Biopsy D. Immediate surgery E. Reassurance</p>
34.	<p>A 20 year old lady is suffering from fever and loss of appetite. She has been diagnosed with toxoplasmosis. What is the SINGLE most appropriate treatment?</p> <p>A. Pyrimethamine B. Pyrimethamine + sulfadiazine C. Clindamycin D. Spiramycin E. Trimethoprim + sulfamethoxazole</p>
35.	<p>A 28 year old man presents with a deep penetrating wound on his foot after having stepped on a nail in a field. He said he had the full course of tetanus vaccine when he was in school and again at 18 years old. What is the SINGLE most appropriate management to be given?</p> <p>A. Tetanus immunoglobulins only B. Tetanus immunoglobulins and tetanus vaccine C. Complete course of tetanus vaccine D. Tetanus booster vaccine only E. Antibiotic</p>
36.	<p>A 36 year old homosexual man has multiple purple nodular lesions on his face and upper trunk measuring 1-2 cm across. It is not painful or itchy. What is the SINGLE most likely diagnosis?</p> <p>A. Kaposi's sarcoma B. Squamous cell carcinoma C. Basal cell carcinoma D. Melanoma E. Cryptococcal infection</p>
37.	<p>A 30 year old man is seen in the emergency department with vomiting, muscle pain, rash at his axilla and sensitivity to light. He has a temperature of 38.9°C. The medical staff are suspecting he is suffering from meningitis. Which is the SINGLE most appropriate empirical antibiotic to be started immediately?</p> <p>A. IM Benzylpenicillin B. IV Cefotaxime C. IV Gentamicin D. IV Aciclovir E. IV Amoxicillin</p>



38.	<p>A 55 year old man has auricular pain and tinnitus on his left ear. On inspection, a painful vesicular rash around the auditory canal is noted. He also has decreased hearing on the left ear. What is the SINGLE most likely diagnosis?</p> <p>A. Acute mastoiditis B. Cholesteatoma C. Ramsay Hunt syndrome D. Herpes zoster ophthalmicus E. Otitis media with effusion</p>
39.	<p>A 20 year old man with a known diagnosis of otitis media presents with a severe headache, and sensitivity to light. He is shivering, sweating and has a temperature of 38.9°C. What is the SINGLE most likely complication?</p> <p>A. Giant cell arteritis B. Meningitis C. Myringitis D. Trigeminal neuralgia E. Labyrinthitis</p>
40.	<p>A 62 year old IV drug abuser is brought into the emergency department with complaint of fever, shivering, malaise, shortness of breath and productive cough. Around 8 days ago he developed symptoms consistent with a flu-like illness. Initially there was an improvement in his condition but deteriorated over the past three days. He now has a temperature of 39°C, a pulse of 110 beats/minute, a blood pressure of 100/70 mmHg and a respiratory rate of 22 breaths/minute. A Chest X-ray shows bilateral cavitations. What is the SINGLE most likely causative organism?</p> <p>A. Mycoplasma pneumoniae B. Staphylococcus aureus C. Chlamydia pneumoniae D. Escherichia coli E. Klebsiella pneumoniae</p>
41.	<p>A 30 year old man presents to the emergency department with difficulty breathing. He has returned from India 5 days ago. On examination, his throat reveals grey membranes on the tonsils and uvula. He has a fever, and enlarged anterior cervical lymph nodes. What is the SINGLE most likely diagnosis?</p> <p>A. Diphtheria B. Infectious mononucleosis C. Acute follicular tonsillitis D. Scarlet fever E. Agranulocytosis</p>
42.	<p>A 33 year old male patient presents with a white patches in the mouth that can be wiped off and is easily removed leaving behind a red base which is painless. He has cracks at the corners of his mouth. What is the SINGLE most likely diagnosis?</p>



	<p>A. Kaposi's sarcoma B. Molluscum contagiosum C. Cytomegalovirus infection D. Oral thrush E. Leukoplakia</p>
43.	<p>A 33 year old man with Hodgkin's lymphoma has chemotherapy 9 days ago. He develops a temperature of 39.0°C and signs of a chest infection. Blood count shows:</p> <p>Haemoglobin 113 g/L White cell count $2.3 \times 10^9/L$ Neutrophils $0.8 \times 10^9/L$ Platelets $150 \times 10^9/L$</p> <p>What is the SINGLE most likely management?</p> <p>A. Co-amoxiclav B. Piperacillin+tazobactam C. Erythromycin D. Piperacillin+Co-amoxiclav E. Clarithromycin</p>
44.	<p>A 67 year old man who is currently on chemotherapy treatment for a malignancy suddenly develops febrile neutropenia. He has been commenced on tazocin and gentamicin. He has recently commenced meropenem but his fever still remains at 39°C on the 3rd day. Two blood tests and urine cultures have come back negative. Investigation done this morning show:</p> <p>Haemoglobin 104 g/L White cell count $0.5 \times 10^9/L$ Platelets $35 \times 10^9/L$</p> <p>What is the SINGLE best management?</p> <p>A. Continue IV antibiotics and add oral antifungals B. Continue IV antibiotics and add IV antifungals C. Stop antibiotics D. Continue present antibiotics E. Repeat blood culture</p>
45.	<p>A 69 year old woman lives in a nursing home following a stroke. She recently developed a reddish scaly rash on her trunk. She has many scratch marks on her limbs and trunk with linear burrows seen on her hands and feet. What is the SINGLE most appropriate treatment?</p> <p>A. Aqueous cream B. Chlorpheniramine C. Coal tar D. Hydrocortisone ointment</p>



	E. Permethrin
46.	<p>An 82 year old man was brought into the emergency department with a low level of consciousness. His wife mentions that he had a severe headache for the last 20 hours and was very sensitive to light. He has a temperature of 39.0°C, a pulse of 118 beats/minute, a blood pressure of 80/55 mmHg and a respiratory rate of 32 breaths/minute. He is conscious but confused. Kernig's sign was positive. High flow oxygen and IV fluids was immediately started. What is the SINGLE most appropriate immediate management?</p> <p>A. Intravenous antibiotic B. Lumbar puncture C. Computed tomography brain scan D. Head magnetic resonance imaging E. Blood culture</p>
47.	<p>A 33 year old woman has numerous painful ulcers on her vulva. She is sexually active and has multiple partners in the past. What is the SINGLE most likely cause of her ulcers?</p> <p>A. Chlamydia B. Trichomonas vaginalis C. Gardenella D. Herpes simplex virus E. Epstein barr virus</p>
48.	<p>A 15 year old boy had a patchy rash over his body following antibiotic treatment for sore throat. On examination, he has cervical lymph node enlargement and mild splenomegaly which is tender on palpation. What is the SINGLE most likely antibiotic that would have caused the rash?</p> <p>A. Ampicillin B. Erythromycin C. Cefuroxime D. Metronidazole E. Tetracycline</p>
49.	<p>A 38 year old female, 32 weeks pregnant presents with thick white marks on the inside of her mouth for 3 weeks. Her mouth including her tongue appears inflamed on examination. She smokes 20 cigarettes a day despite advice to quit. What is the SINGLE most likely diagnosis?</p> <p>A. Lichen planus B. Aphthous ulcer C. Molluscum contagiosum D. Candidiasis E. Leukoplakia</p>
50.	<p>A 38 year old woman recently returned from Bangkok. She did not have any malaria prophylaxis before leaving the UK on her trip. She presents with a high fever, generalised macular blanching rash,</p>



	<p>tender and swollen cervical lymphadenopathy and generalised myalgia. What is the SINGLE most likely diagnosis?</p> <p>A. Cerebral Malaria B. Dengue Fever C. Typhoid D. Diphtheria E. Lymphoma</p>
51.	<p>A 5 year old child started having a fever two days ago associated with neck stiffness, chills, impaired consciousness and vomiting. He has a history of travel with his parents to Ghana and returned 6 weeks ago. Before he left to Ghana, he was started on malaria prophylaxis. A full blood count shows that the young child is anaemic. What is the SINGLE most likely diagnosis?</p> <p>A. Cerebral abscess B. Cerebral malaria C. Meningococcal meningitis D. Subarachnoid haemorrhage E. Cerebral tumour</p>
52.	<p>A 15 year old girl presents to A&E with headache, vomiting, neck stiffness and photophobia. No rash was seen on examination. Her temperature is 38.3°C, heart rate is 90 bpm and respiratory rate is 18/min. What is the SINGLE most appropriate investigation?</p> <p>A. Blood culture B. Blood glucose C. Lumbar puncture D. Chest X-ray E. CT head</p>
53.	<p>A 32 year old man has recently been to Thailand and returned with cervical lymphadenopathy, malaise and a mild fever. What is the SINGLE most likely infectious agent causing his symptoms?</p> <p>A. Human immunodeficiency virus (HIV) B. Treponema pallidum C. Salmonella typhi D. Measles E. Epstein-Barr virus</p>
54.	<p>A 33 year old African woman presents with episodes of fever with rigors and chills for the past year. Blood film shows ring form plasmodium with schuffner's dots in red blood cells. What is the SINGLE most appropriate drug to eradicate this infection?</p> <p>A. Mefloquine B. Doxycycline C. Proguanil D. Quinine</p>



	E. Primaquine
55.	<p>A 13 year old girl complains of a 3 day history of hoarseness of voice associated with dry cough. She presents with a fever and malaise. On direct laryngoscopy, her vocal cords are seen to be grossly oedematous. What is the SINGLE next most appropriate investigation?</p> <p>A. None required B. Sputum for acid-fast bacilli C. Blood culture D. Cervical spine X-ray E. Bronchoscopy</p>
56.	<p>A 3 year old boy presents with a 2 day history of being unwell. He has a 2 hour old rash made up of urticarial and purpuric spots. His conscious level is decreased. He has a blood pressure of 80/50 mmhg, a respiratory rate of 30 breaths/minute, oxygen saturations of 94%, a temperature of 39°C, and a capillary refill time of 3 second. Urine dipstick was found to be negative. What is the SINGLE investigations most likely to lead to diagnosis?</p> <p>A. Blood culture and sensitivity B. Erythrocyte sedimentation rate (ESR) C. Chest X-ray D. Urine for culture and sensitivity E. Cerebrospinal fluid analysis</p>
57.	<p>A 35 week pregnant woman presents to the Antenatal Day Unit with productive cough and rigors. This is her first pregnancy and there have been no issues to date. She returned from Uganda two weeks ago from a family visit. She is suspected to have respiratory tuberculosis. What is the SINGLE most likely medication that should NOT be used in pregnancy?</p> <p>A. Ethambutol B. Pyrazinamide C. Streptomycin D. Isoniazid E. Rifampicin</p>
58.	<p>A 32 year old breast feeding mother has a painful, swollen, hard lump in her right breast which developed 2 weeks after having a normal vaginal delivery. She has a temperature of 38.1°C. A breast abscess is suspected. What is the SINGLE most likely organism?</p> <p>A. Staphylococcus aureus B. Staphylococcus albus C. Streptococcus agalactiae D. Streptococcus pyogenes E. Staphylococcus epidermidis</p>
59.	<p>A 38 year old woman presents with dysphagia and a lump on her neck. On examination, there is a 5 cm by 4 cm erythematous neck swelling lateral to the thyroid cartilage. She has a temperature of</p>



	<p>38.9°C, a respiratory rate of 28 breaths/minute and a heart rate of 110 beats/minute. What is the SINGLE most appropriate action?</p> <p>A. Thyroid function test B. Paracetamol, Ibuprofen and broad spectrum antibiotics orally C. X-ray of neck D. Endoscopic diverticulotomy E. Intravenous antibiotics, incision and drainage</p>
60.	<p>A 45 year old man has developed an annular rash with a scaly edge on his thigh. The rash has been spreading over the last 3 weeks. He also complains of general aches and pains. What is the SINGLE most appropriate investigation?</p> <p>A. Antinuclear antibodies B. Biopsy of lesion C. Skin scrap for mycology D. Antibodies to <i>Borrelia recurrentis</i> E. Antibodies to <i>Borrelia burgdorferi</i></p>
61.	<p>A 33 year old known drug abuser has swelling and erythema in his arm where he injects. He has a fever and appears sick. He is asking for morphine as the pain is severe and seems to be disproportionate to the clinical appearance. Bullae is seen on the skin of his arm. He was started on intravenous flucloxacillin but the infection has not responded to antibiotics and seems to be worsening. What is the SINGLE most likely diagnosis?</p> <p>A. Cellulitis B. Erysipelas C. Pyoderma gangrenosum D. Penicillin allergic reaction E. Necrotising fasciitis</p>
62.	<p>A 34 year old man who has a new diagnosis of haematological malignancy presents in the emergency department with bruises all over his abdomen. He has a temperature of 38.6°C. His respiratory rate is 25 breaths/minute, heart rate is 102 beats/minute and blood pressure is 80/50 mmHg. His blood results show:</p> <p>White cell count $23 \times 10^9/L$ Neutrophils $0.4 \times 10^9/L$</p> <p>He is commenced on meropenem. What is the SINGLE most likely diagnosis?</p> <p>A. Septic shock B. Neutropenic sepsis C. Hepatitis D. Cytomegalovirus E. HIV</p>



63.	<p>A 7 year old child is being investigations for active respiratory tuberculosis. He has dry cough and is unable to produce sputum. His parents have been informed about the possibility of a bronchoalveolar lavage which can be useful in diagnosis tuberculosis however the parents decline this invasive test. What is the SINGLE next method to acquire a sample to diagnose tuberculosis?</p> <p>A. Venipuncture B. Throat swab C. Gastric lavage D. Liver biopsy E. Lumbar puncture</p>
64.	<p>A 30 year old homeless lady has cough, sputum and a fever. She complains of night sweats and has lost 13 kg in the past 6 months. A chest X-ray was performed which showed apical involvement with infiltrates and cavitation in the upper lobe of the right lung. What is the next SINGLE most appropriate test to perform?</p> <p>A. Acid-Fast Bacilli smear B. Mantoux test C. Interferon Gamma test D. Bronchoscopy E. Computed tomography</p>
65.	<p>A 23 year old homeless smoker has an ongoing productive cough. She takes recreational drugs and looks malnourished. She has lost 15 kg in the past year. There are several nontender swellings on both sides of her neck. On examination, she has crackles in her right upper lobe but is otherwise well and stable. A chest X-ray reveals upper lobe infiltrates with cavitation on the right lung. What is the SINGLE most likely diagnosis?</p> <p>A. Aspergillosis B. Klebsiella pneumoniae C. Pneumococcal pneumonia D. Bronchogenic Carcinoma E. Tuberculosis</p>
66.	<p>A 6 week infant has been diagnosed as HIV positive. What is the SINGLE most appropriate immunization plan for the infant?</p> <p>A. Avoid MMR vaccinations and tetanus vaccinations B. Administer all vaccines as scheduled except live attenuated vaccines C. Administer only BCG vaccine D. Administer all vaccines as scheduled except BCG vaccine E. Avoid influenza vaccinations</p>
67.	<p>A 12 month old child who is HIV positive is due for his measles, mumps, and rubella (MMR) vaccine. His CD4 count is more than 200 cells/mL. What is the SINGLE most appropriate action?</p> <p>A. Defer immunization for 2 weeks</p>



	<p>B. Advise not to have MMR vaccine C. Administer half dose of MMR vaccine D. Administer paracetamol with MMR vaccine E. Proceed with administration of MMR vaccination</p>
68.	<p>A 70 year old diabetic woman has a red swelling over her right foot. Her foot is erythematous, glossy, warm and tender to touch. She is a heavy smoker. What SINGLE complication is this woman likely to develop?</p> <p>A. Osteomyelitis B. Septicaemia C. Ulcers D. Gangrene E. Necrotising fasciitis</p>
69.	<p>A 58 year old woman attends clinic for advice as her grandson who lives with her has developed chicken pox with the rash appearing 2 days ago. She is currently undergoing chemotherapy for breast cancer and has been using long term corticosteroids to manage her inflammatory bowel disease. She has never had chicken pox before. On examination, there is no evidence of any rash. What is the SINGLE most appropriate management?</p> <p>A. Intravenous aciclovir B. Oral aciclovir C. Immunisation against varicella zoster D. Varicella zoster immunoglobulin E. Reassurance</p>
70.	<p>A 5 year old boy was brought to his GP with a temperature of 38.8°C and numerous pruritic vesicles on his chest and back. What is the SINGLE most appropriate management?</p> <p>A. Intravenous aciclovir B. Oral aciclovir C. Oral antibiotics D. Topical steroids E. Reassurance</p>
71.	<p>A 24 year old male has a history of urethral discharge and dysuria. He is sexually active with other men and has had four sexual partners in the last year. He does not practice safe sex. Urethral swabs were taken which results came back positive for chlamydia. What is the SINGLE most likely complication if left untreated?</p> <p>A. Orchitis B. Balanitis C. Epididymo-orchitis D. Acute abdomen E. Erectile dysfunction</p>



72.	<p>A 30 year old man from Australia returned from a business trip to Indonesia 6 days ago presenting with complaints of fever, headache, vomiting, joint and muscle ache. His headache is felt behind the eyes and has been present for the past 2 days. What is the SINGLE most likely diagnosis?</p> <p>A. Malaria B. Chicken pox C. Diphtheria D. Typhoid fever E. Dengue</p>
73.	<p>A 20 week pregnant lady presents with intermittent fever, coughs, headaches, myalgia, gastric upset and mild confusion. She arrived from Ghana 12 days ago. She travelled there to visit her family. Before she left, she was prescribed chloroquine and proguanil and she took it as prescribed starting 1 week before entering Ghana. She is still taking chloroquine and proguanil as her doctor had asked her to continue it for 4 weeks after arriving in the United Kingdom. On examination, she has a yellowish tinge on her skin. What is the SINGLE most likely diagnosis?</p> <p>A. Malaria B. Hepatitis C. Dengue D. Influenza E. Side effects of medication</p>
74.	<p>A 7 year old boy presented 10 hours after having a foot injury while playing football in the garden. A metal spike had gone through his shoes and pierced the bottom of his foot. His immunisations are up to date. What is the SINGLE most appropriate management?</p> <p>A. Administer antibiotics and immunoglobulins B. Administer antibiotics, immunoglobulins and vaccine C. Administer antibiotics and vaccine D. Administer immunoglobulins and vaccine E. Administer antibiotics only</p>
75.	<p>A 21 year old man has generalized skin lesions. The skin lesions consist of macular, papular and vesicles and concentrated more on his back and chest. Pinkish fluid is seen secreted from a few of the lesions. He has a temperature of 39.1°C. What is the SINGLE most appropriate medication to prescribe?</p> <p>A. Topical antibiotics B. Topical steroids C. Oral antibiotics D. Oral steroids E. Topical steroid and antibiotic gel</p>
76.	<p>A 33 year old man has complains of dysuria and three tender penile ulcers. He is sexually active and does not use any protection. What is the SINGLE most likely diagnosis?</p>



	<p>A. Chlamydia infection</p> <p>B. Gonorrhea infection</p> <p>C. Primary syphilis</p> <p>D. Trichomoniasis</p> <p>E. Herpes infection</p>
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SAMPLE



NEPHROLOGY

SAMPLE



1.	<p>A 34 year old woman with diabetes mellitus is undergoing a contrast radiography. What is the SINGLE most appropriate measure that should be taken to prevent renal damage with contrast dye?</p> <p>A. Reduce contrast dye B. Plenty of fluids C. NSAIDS D. ACE inhibitors E. IV dextrose</p>
2.	<p>A 32 year old woman of 38 weeks gestation complains of feeling unwell with fever, rigors and abdominal pains. The pain was initially located in the abdomen and was associated with urinary frequency and dysuria. The pain has now become more generalized specifically radiating to the right loin. She says that she has felt occasional uterine tightening. CTG is reassuring. What is the SINGLE most likely diagnosis?</p> <p>A. Acute fatty liver of pregnancy B. Acute pyelonephritis C. Round ligament stretching D. Cholecystitis E. Cystitis</p>
3.	<p>A 26 year old mountain biker was rescued after being trapped under heavy rocks for almost 12 hours. His urine is dark and urine is positive for blood on dipstick. His heart rate is 120 bpm and systolic blood pressure is 100 mmHg. Lab results show a creatinine of 350 $\mu\text{mol/L}$ and urea of 15 mmol/L. What is the SINGLE most appropriate management?</p> <p>Normal Lab values:</p> <p>Creatinine 70–150$\mu\text{mol/L}$</p> <p>Urea 2.5–6.7mmol/L</p> <p>A. Dialysis B. IV Normal saline C. IV dextrose D. IV KCl E. Pain relief</p>
4.	<p>A 45 year old known hypertensive man presents with tiredness, lethargy, fluid retention and proteinuria. His albumin levels are low. What is the SINGLE most definitive diagnostic test?</p> <p>A. Mid stream urine for culture B. Renal biopsy C. Renal function test D. Urine microscopy</p>



	E. Serum protein
5.	<p>A 31 year old lady has urinary frequency, pain on voiding and back pain. The urine is cloudy with an offensive smell. She has a temperature of 38.6°C. What is the SINGLE most likely causative organism?</p> <p>A. Klebsiella B. Escherichia coli C. Proteus D. Staphylococci E. Pseudomonas</p>
6.	<p>A 27 year old lady was admitted with fever, rigors, and loin pain. A dipstick urinalysis was positive for blood, leukocyte esterase and nitrites. A midstream specimen of urine (MSU) was sent for culture. What is the SINGLE appropriate action?</p> <p>A. Start antibiotics immediately B. Wait for culture results to start antibiotics C. Spiral CT D. Intravenous pyelogram (IVP) E. Ultrasound and KUB X-ray</p>
7.	<p>In chronic renal failure, what is the main cause of vitamin D deficiency?</p> <p>A. Decreased vitamin D absorption in intestines B. Deficiency of 25 alpha-hydroxyvitamin D C. Excess Vitamin D loss in urine D. Reduced activity of 1-alpha hydroxylation E. Unavailability of Vit D precursors</p>
8.	<p>A 24 year old male was trying to move his wardrobe when it fell on his thigh. His two legs were trapped underneath it for several hours before someone was able to help him get out. When he was seen in the ED his urine was dark and dipstick was positive for blood. His heart rate is 115 bpm and systolic blood pressure is 100 mmHg. Lab results show a creatinine of 320 µmol/L and urea of 13 mmol/L. What is the SINGLE most likely cause of his renal failure?</p> <p>Creatinine 70–150µmol/L</p> <p>Urea 2.5–6.7mmol/L</p> <p>Plab Lab Values</p> <p>A. Acetylcholine B. Drug toxicity C. Troponin D. Acetoacetate E. Myoglobin</p>



9.	<p>An 18 year old man reports having several episodes of visible haematuria over the last 24 hours. There is no history of abdominal or loin pain. These typically seem to occur within a day or two of developing an upper respiratory tract infection. Urine testing by dipstick shows albumin and blood. What is the SINGLE most likely diagnosis?</p> <p>A. IgA nephropathy B. Henoch-Schönlein purpura C. Minimal change nephropathy D. Wilson's disease E. Post-streptococcal glomerulonephritis</p>
10.	<p>A 50 year old women newly diagnosed with hypertension complains of urinary frequency and dysuria for the past 2 weeks. Urinalysis reveals presence of white cells and protein. What is the SINGLE most appropriate management?</p> <p>A. Imipramine B. Furosemide C. Vaginal oestrogen cream D. Trimethoprim E. Clotrimazole</p>
11.	<p>A 44 year old man presents with periorbital and pedal edema. 24h urine shows 8 g of protein and his serum cholesterol is 7 mmol/L. Renal biopsy results have not come back yet. What would be the SINGLE most likely diagnosis?</p> <p>A. Minimal change disease B. Membranous glomerulonephropathy C. Focal segmental glomerulosclerosis (FSGS) D. IgA nephropathy E. Mesangiocapillary</p>
12.	<p>A 26 year old man presents to hospital complaining that his urine has been very dark recently resembling tea. He had recently been under "the weather" 2 weeks back and had taken a few days off work with a sore throat and coryzal symptoms. A urine dipstick returns highly positive for blood and protein. He is admitted for supportive management. What is the SINGLE most likely diagnosis?</p> <p>A. Membranous glomerulonephropathy B. Systemic Lupus Erythematosus C. Wegener's granulomatosis D. Post-streptococcal glomerulonephritis E. IgA nephropathy</p>
13.	<p>A 29 year old lady was admitted with fever, rigors, loin pain and vomiting. A dipstick urinalysis was positive for blood, leukocyte esterase and nitrites. She has a history of repeated urinary tract infections but this time she has blood in her urine. What is the SINGLE most likely diagnosis?</p> <p>A. Acute pyelonephritis</p>



	<p>B. Chronic pyelonephritis C. Urinary tract infection D. Bladder stone E. Urethritis</p>
14.	<p>A 32 year old miner was rescued after being trapped under a fallen rock for 4 hours. After applying a bladder catheter, 15-20 ml of reddish brown urine was obtained. He has a systolic blood pressure of 100 mmHg and a pulse rate of 130 beats/minute. What is the SINGLE most appropriate next management?</p> <p>A. Dopamine intravenously B. Intravenous fluids C. Furosemide intravenously D. 20% Mannitol intravenously E. Intravenous antibiotics</p>
15.	<p>A 3 year old child presents to A&E with history of bloody diarrhea and decreased urination. The mother states that the child's developed fever, vomiting, abdominal pain, and diarrhea that started 5 days ago. On physical examination, the patient appears ill. He is pale and lethargic. Laboratory results show platelets $80 \times 10^9/L$, haemoglobin 9 mg/dL,. There was fragmented red cells on blood film. What is the SINGLE most likely diagnosis?</p> <p>A. Ulcerative colitis B. Hemolytic uremic syndrome C. Thrombotic thrombocytopenic purpura (TTP) D. Hepatorenal syndrome E. Sepsis</p>
16.	<p>A 65 year old diabetic woman is undergoing a coronary angiography. What is the SINGLE most appropriate measure to prevent contrast induced nephropathy?</p> <p>A. Administer furosemide B. Administer dextrose C. Administer 0.45% saline D. Administer 0.9% saline E. Administer corticosteroids</p>
17.	<p>A 6 year old boy is brought to the emergency department by his mother because of swelling on his legs the has been worsening in the last two days. The swelling is also present in the scrotum and around his eyes. He is generally tired and his urine is noted to be frothy. Renal biopsy report states no abnormalities can be seen on light microscopy, however, electron microscopy reveals abnormal podocytes (fused). What is the SINGLE most likely diagnosis?</p> <p>A. Thrombotic thrombocytopenic purpura (TTP) B. Myelodysplastic disease C. Henoch–Schönlein purpura (HSP) D. Membranous glomerulonephritis</p>



	E. Minimal change disease
18.	<p>A 24 year old man has just completed a long-distance running event. He becomes very weak afterward and is brought to the emergency department with painful muscles and red-brown urine. Urine is positive for blood on dipstick but without RBC on microscopy. ECG shows a tall T waves, small P waves, and a widened QRS complex. What is the SINGLE most appropriate initial management?</p> <p>A. Intravenous calcium gluconate B. IV normal saline C. IV Magnesium sulphate D. Pain relief E. Oral rehydration</p>
19.	<p>A 34 year old primigravida who is now 16 week gestation attends the antenatal clinic for a routine check up. She has a blood pressure of 160/100 mmHg. She has a history of repeated childhood urinary tract infections. What is the SINGLE most likely cause of her high blood pressure?</p> <p>A. Essential hypertension B. Chronic pyelonephritis C. Acute pyelonephritis D. Pre-eclampsia E. Perinephric abscess</p>
20.	<p>A 35 year old lady presents with a 12 day history of haemoptysis, and 24 hour history of haematuria. In last 24 hours she has become increasingly breathless and oliguric. A chest X-ray shows patchy interstitial infiltration predominantly affecting both lower zones. Her blood tests show:</p> <p>Haemoglobin 98 g/L Serum urea 9.5 mmol/L Serum creatinine 393 μmol/L Sodium 136 mmol/L Potassium 5.9 mmol/L</p> <p>What is the SINGLE most appropriate investigation?</p> <p>A. Anti-glomerular basement membrane antibodies B. Abdominal X-ray C. Urine protein electrophoresis D. Ultrasound abdomen E. Computed tomography abdomen and chest</p>
21.	<p>A 4 year old child presents with swelling. Periorbital oedema, lower limb oedema and oedema of the genitals were noted on examination. A urine dipstick shows proteinuria. He has a normal renal function, normal blood pressure, normal complement levels. What is the SINGLE most likely diagnosis?</p> <p>A. Post-streptococcal glomerulonephritis</p>



	<p>B. Membranous glomerulonephropathy C. Minimal change disease D. Rapidly progressive glomerulonephritis E. IgA nephropathy</p>
22.	<p>A 32 year old man presents with painless haematuria and flank pain. His blood pressure is 155/98 mmHg. The rest of the physical examination was otherwise unremarkable. What is the SINGLE most likely diagnosis?</p> <p>A. Bladder cancer B. Adult polycystic kidney disease C. Thrombotic thrombocytopenic purpura (TTP) D. Prostate cancer E. Haemolytic uraemic syndrome (HUS)</p>
23.	<p>A 42 year old woman with a past medical history of severe headache treated in the emergency department presents with signs and symptoms of renal failure. She has been seen by her GP for hypertension and loin pain with outpatient investigation pending. What SINGLE investigations is most likely to lead to a diagnosis? Plab Lab Values</p> <p>A. Ultrasound of the kidneys, ureters & bladder B. Computed tomography brain scan C. Intravenous urogram D. Renal artery doppler E. Renal biopsy</p>
24.	<p>A 65 year old woman with diabetes, and hypertension underwent a total right hip replacement. She had massive haemorrhage during the operation and was given 8 units of packed red blood cells. The blood pressure dropped to 60/40 mmHg for about two hours before it was corrected with intravenous fluids and blood transfusions. Two days after the surgery, her blood results show:</p> <p>Serum creatinine level rose to 255 $\mu\text{mol/L}$ Potassium 5.1 mmol/L</p> <p>She had a normal kidney function prior to the surgery. What is the SINGLE most likely diagnosis?</p> <p>A. Diabetic nephropathy B. Malignant hypertension C. Rhabdomyolysis D. Interstitial nephritis E. Acute tubular necrosis</p>
25.	<p>A 58 year old man complains of tiredness, lethargy, nausea and severe itching which is worse after a hot bath and at night. His skin appears pale and dry with increased skin pigmentation and numerous scratch marks. Peripheral oedema is noted on examination. What is the SINGLE most likely diagnosis? Plab Lab Values</p>



	<p>A. Hyperthyroidism B. Polycythaemia vera C. Chronic renal failure D. Eczema E. Liver failure</p>
26.	<p>A 35 year old man has recently been diagnosed as having asthma. He has attended clinic with complains of having deep and aching pains in his lower back especially at night. On examination, there are skin lesions present in the form of tender subcutaneous nodules on his legs. Investigations were performed and he was started on corticosteroids. What is the SINGLE most likely diagnosis?</p> <p>A. Ankylosing spondylitis B. Churg-strauss syndrome C. Cryptogenic fibrosing alveolitis D. Polyarteritis nodosa E. Tropical eosinophilia</p>
27.	<p>A 2 year old boy has gradual swelling of his face, feet and legs. He feeds poorly but is noted to have gained weight. There is a foamy appearance of the urine. He feels fatigue. What is the SINGLE most appropriate investigation?</p> <p>A. Ultrasound kidneys B. 24 hour urinary protein C. Serum calcium D. Urea and electrolytes E. Serum glucose</p>
28.	<p>A 52 year old man known diabetes mellitus presents to emergency department with sudden onset of pain in the left loin and haematuria. An ultrasound scan shows a 7mm stone in left lower ureter. Diclofenac was administered for the renal colic pain and nifedipine and prednisolone was prescribed as initial treatment as part of an expulsive therapy. He returns to the emergency department the following day with worsening pain, vomiting and a history of having passed two stones. A repeat ultrasound scan reveals hydronephrosis in the left ureter and the presence of stones. His renal function test indicate an acute kidney injury. What is the SINGLE most appropriate management?</p> <p>A. Repeat a similar regimen B. Administer an alpha blocker C. Extracorporeal shock wave lithotripsy D. Open surgery E. Percutaneous nephrostomy</p>
29.	<p>A 2 year old boy is brought to the hospital by his mother with diarrhoea and vomiting. He was previously fit and well until a few days ago where he was treated with antibiotics by his general practitioner for an upper respiratory tract infection. He no longer has a cough but feels extremely unwell. His recent blood test show:</p>



Na 124
Potassium 5.9
Urea 10.1

What is the SINGLE most likely diagnosis?

- A. Renal failure
- B. Adrenal insufficiency
- C. Gastroenteritis
- D. Pyloric stenosis
- E. Hypopituitarism

SAMPLE



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NEUROLOGY

SAMPLE



1.	<p>A 72 year old woman is seen to collapse by her son. He calls the paramedics when she is unable to stand and seems weak down her right side. On arrival to the A&E her GCS is 13/15 with a right hemiparesis. She is increasingly agitated and within an hour her GCS is 8/15. Which is the SINGLE most appropriate next course of action?</p> <p>A. Urgent anaesthetic review B. Start thrombolysis treatment C. Give aspirin D. Give lorazepam E. Urgent CT head</p>
2.	<p>A 50 year old man presents to the emergency department with right leg pain and back pain. There is greater pain when he is lying supine with his leg raised. What is the SINGLE most appropriate investigation?</p> <p>A. MRI B. CT spine C. Plain X-ray D. Dual energy X-ray absorptiometry E. Doppler ultrasound</p>
3.	<p>A 65 year old woman with difficulty in swallowing presents with an aspiration pneumonia. She has a bovine cough. Her tongue looks wasted and sits in the mouth with fasciculations. It is very difficult for her to articulate certain words. Sometimes as she swallows food, it comes back through her nose. What is the SINGLE most likely cause of her dysphagia?</p> <p>A. Bulbar palsy B. Oesophageal carcinoma C. Pharyngeal pouch D. Pseudobulbar palsy E. Systemic sclerosis</p>
4.	<p>A 45 year old man has acute back pain radiating down to his legs and faecal incontinence. On examination, perineal sensory loss is noted. What is the SINGLE most likely diagnosis?</p> <p>A. Multiple sclerosis B. Lumbosacral disc herniation C. Degenerative disc disease D. Thoracic disc herniation E. Cauda equina syndrome</p>
5.	<p>A 35 year old woman complains of dizziness. She awoke in the morning with a mild headache and the dizziness started when she sat up in bed. She felt that the room was spinning for a few minutes. If she is at rest the spinning stops but is aggravated again by movement. There are no other neurological symptoms. What is the SINGLE most likely diagnosis</p> <p>A. Brainstem stroke</p>



	<p>B. Benign paroxysmal positional vertigo C. Meniere's disease D. Vestibular neuronitis E. Acoustic neuroma</p>
6.	<p>A 33 year old patient presents with gradual onset of headache, neck stiffness, photophobia and fluctuating lost of consciousness. Cerebral spinal fluid shows lymphocytosis and decrease glucose but no organism on gram stain. A CT head was read as normal. What is the SINGLE most likely causative organism?</p> <p>A. Neisseria meningitidis B. Mycobacterium tuberculosis C. Cytomegalovirus D. Listeria monocytogenes E. Streptococcus pneumoniae</p>
7.	<p>An 18 year old female presents to the Emergency Department with a generalized tonic-clonic seizure. Her seizure had lasted 20 minutes according to eyewitness accounts. Her SpO2 is currently 97% and she has already been given 2 doses of rectal diazepam but the seizures have not stopped. What is the SINGLE most appropriate management?</p> <p>A. IV Lorazepam B. IV Phenobarbital C. IV Phenytoin D. Refer to ICU E. Immediate intubation</p>
8.	<p>A 50 year old lady presents with a sudden onset of severe occipital headache associated with neck pain and vomiting. CT brain was inconclusive and a lumbar puncture was performed which revealed xanthochromia. What is the SINGLE most likely diagnosis?</p> <p>A. Bacterial meningitis B. Viral meningitis C. Migraine D. Subarachnoid haemorrhage E. Subdural haemorrhage</p>
9.	<p>A 70 year old woman was brought into the Emergency Department by her son for increasing confusion and slurred speech. On examination, she was oriented to time, place and person. Neurological examination was positive for bilateral past pointing and truncal ataxia but no nystagmus. Blood tests were within normal limits. Where is the SINGLE most likely location of her lesion?</p> <p>A. Bilateral basal ganglia B. Left temporo-parietal lobe C. Cerebellar vermis D. Left cerebellar lobe E. Left-sided frontal lobe</p>



10.	<p>A 26 year old woman complains of headache of 1 day duration that has been intensifying in severity over the last few hours. There is discomfort while turning her head and cannot tolerate bright lights. On examination, there is no papilloedema nor rashes. Kernig's sign is negative. Lumbar puncture results reveal: elevated protein, normal glucose, and lymphocytosis. She is generally unwell but haemodynamically stable. What is the single most likely diagnosis?</p> <p>A. Viral meningitis B. Migraine C. Aseptic meningitis D. Bacterial meningitis E. TB meningitis</p>
11.	<p>A 72 year old man with a history of hypertension and an ex-smoker presents to the clinic with his wife due to change in behavior. For the past year and a half, he has slowly become socially withdrawn with a decrease interest in his usual hobbies. There are times where he forgets to groom himself and there was an incident once where his wife found him urinating on the sofa. Over the past few months there has been a gradual struggle with finding the right word choice while talking. What is the SINGLE most likely diagnosis?</p> <p>A. Depression B. Frontotemporal dementia C. Alzheimer's disease D. Vascular dementia E. Lewy body disease</p>
12.	<p>A 36 year old woman presents to clinic with intermittent episodes of dizziness that lasts 1 day each time for the past 6 months. Recently, she has experienced ringing and increased pressure in her ears. Her husband noticed that she has had to increase the volume of her television. MRI head is normal. What is the SINGLE most likely diagnosis?</p> <p>A. Benign paroxysmal positional vertigo B. Vestibular schwannoma C. Vestibular neuronitis D. Cervical spondylosis E. Meniere's disease</p>
13.	<p>A 50 year old woman presents with facial asymmetry. She noted in the morning that the right hand corner of her mouth was drooping. She had some pain behind her right ear yesterday and complains of dryness in her right eye. On examination, she is unable to move her right side of her face. What is the SINGLE most likely diagnosis?</p> <p>A. Ramsey-Hunt syndrome B. Bell's palsy C. Multiple sclerosis D. Stroke E. Parotid tumour</p>



14.	<p>A 5 year old girl is brought to the hospital by her mother with complaints of sudden right facial weakness, numbness and pain around her ear. She reports no other symptoms. On examination, her right eyebrow is unable to raise and the right hand corner of her mouth is drooping. What is the SINGLE most likely diagnosis?</p> <p>A. Subarachnoid haemorrhage B. Bell's palsy C. Stroke D. Transient ischaemic attack E. Subdural haemorrhage</p>
15.	<p>A 55 year old man presents to clinic with shortness of breath and increased daytime sleepiness. He drinks 25 units of alcohol weekly. On examination, his BMI is 35 kg/m², blood pressure is 150/70 mmHg, and respiratory exam was normal. His wife complains that he snores loudly at night. What is the SINGLE most appropriate initial investigation likely to confirm his diagnosis?</p> <p>A. Polysomnography B. Pulse oximetry C. EEG D. Multiple sleep latency test E. Epworth sleepiness scale</p>
16.	<p>A 55 year old male had a recent transient ischaemic attack which he recovered from. He had a stroke 4 years ago. ECG shows a heart rate of 80 bpm in sinus rhythm. He is already on aspirin 75 mg and antihypertensive drugs. What SINGLE medication(s) should be offered?</p> <p>A. Clopidogrel only B. Aspirin 300 mg C. Warfarin D. Clopidogrel and statins E. Add statin only</p>
17.	<p>A 24 year old college student presents to A&E with nausea, vomiting, headache, neck stiffness and a fever of 38.4°C. What is the SINGLE most appropriate empirical antibiotic to be started immediately?</p> <p>A. Intravenous Ceftriaxone B. Intramuscular Benzylpenicillin C. Intravenous Gentamicin D. Intravenous Tazobactam E. Intravenous Amoxicillin</p>
18.	<p>A 55 year old man presents to clinic for gradual weakness of his arms bilaterally over the past year. He is now unable to lift heavy loads above his head and has difficulty breathing while going up the stairs. In the past month, he has noticed hoarseness and difficulty in swallowing liquids. On examination, there were muscle atrophy and weakness in the trunk, neck, back and both proximal upper limbs for lower motor signs. Deep tendon reflexes the upper and lower limbs were positive for upper motor</p>



	<p>signs with atrophy of the tongue. Hoffman's sign was positive and autoimmune panel is normal. What is the SINGLE most likely diagnosis?</p> <p>A. Myasthenia gravis B. Guillain-Barre syndrome C. Multiple sclerosis D. Amyotrophic lateral sclerosis E. Polymyositis</p>
19.	<p>A 41 year old woman presents to clinic with vertigo, vomiting and a feeling of aural fullness. The attacks of vertigo can last for several hours. She also states that she has difficulty hearing. She had a similar attack last year. Recently, she has experienced ringing in her ears. MRI scan was done and was found to be normal. What is the SINGLE most likely diagnosis?</p> <p>A. Benign paroxysmal positional vertigo B. Vestibular schwannoma C. Vestibular neuronitis D. Cervical spondylosis E. Meniere's disease</p>
20.	<p>A 19 year old female with previous history of repeated pain over the medial canthus and chronic use of nasal decongestants, presents with abrupt onset of a severe headache, fever with chills and rigor, diplopia on lateral gaze, moderate proptosis and chemosis. On examination optic disc is congested. Which of the following is the SINGLE most likely diagnosis?</p> <p>A. Cavernous sinus thrombosis B. Orbital cellulitis C. Acute ethmoidal sinusitis D. Orbital apex syndrome E. Migraine</p>
21.	<p>A 22 year old female was hit on the side of her head with a cricket ball during a match. She initially lost consciousness but spontaneously recovered but is now experiencing increasing headache with one episode of vomiting. Her roommate has noticed that there is a slowing of responses. What is the SINGLE most likely diagnosis?</p> <p>A. Subarachnoid haemorrhage B. Subdural haemorrhage C. Epidural haemorrhage D. Simple seizure E. None of the above</p>
22.	<p>A 26 year old man complains of pins and needles in his feet. He feels his legs getting weaker in the past 2 days. He gives a history of feeling unwell and having diarrhoea last week which has resolved. On examination, he has mild bilateral facial weakness, reflexes are diminished and has impaired sensation in his legs. What is the SINGLE most likely diagnosis?</p>



	<p>A. Polymyositis B. Multiple sclerosis C. Guillain-Barré syndrome D. Myasthenia Gravis E. Motor neuron disease</p>
23.	<p>A 64 year old man presents with a history of left sided hemiparesis and slurred speech. His symptoms resolved and he was absolutely fine 6 hours after the episode. What is the SINGLE most appropriate prophylactic regimen?</p> <p>A. Aspirin 300mg for 2 weeks followed by aspirin 75 mg B. Aspirin 300mg for 2 weeks followed by aspirin 75 mg and dipyridamole 200mg C. Clopidogrel 75mg D. Dipyridamole 200mg E. Aspirin 300mg for 2 weeks</p>
24.	<p>A 2 year old child fell from his bicycle and immediately ceased breathing and became pale. This was accompanied by a stiffening, clonic jerks of the limbs and loss of consciousness. He regains full consciousness a few seconds later. What is the SINGLE most likely diagnosis?</p> <p>A. Reflex anoxic seizures B. Epilepsy C. Cardiac arrhythmia D. Postural orthostatic tachycardia syndrome E. Pure autonomic failure</p>
25.	<p>A 69 year old man presented to clinic with worsening balance and difficulty walking over the past year. Recently, he has been prone to falling more frequently and his wife notes he forgets to turn off the stove or water taps. He has also started to have urinary urgency and incontinence. On examination he is walking with a cane and has difficulty turning. What is the SINGLE most likely diagnosis?</p> <p>A. Parkinson's disease B. Normal pressure hydrocephalus C. Alzheimer's disease D. Dementia with Lewy bodies E. Frontotemporal dementia (Pick's disease)</p>
26.	<p>A 32 year old female who is 18 months pregnant presents to the Emergency Department. She has a history of epilepsy and is on medication for it however she was non-compliant and did not take her medication for the past 5 days. She had a tonic-clonic seizure earlier in the morning lasting for 5 minutes and was brought in by ambulance. She has IV access. While waiting for a doctor, she starts to have another generalized tonic-clonic seizure. What is the SINGLE most appropriate management?</p> <p>A. IV Lorazepam B. IV Phenobarbital C. IV Phenytoin D. Refer to ICU</p>



	E. Rectal Diazepam
27.	<p>An 8 year old girl is brought to the clinic due to abnormal behavior noticed by her teacher. She would stare blankly towards the wall, sometimes with an upturning of the eyes for around 15 seconds, then blinks. This would occur several times during the day. The teacher notes that while she would resume her activity after these events she would be tired and unable to concentrate. What is the SINGLE most likely diagnosis?</p> <p>A. Simple partial seizure B. Complex partial seizure C. Absence seizure D. Generalized seizure E. Febrile seizure</p>
28.	<p>A 50 year old man, known case of hypertension and deep vein thrombosis, presents to the Emergency Department with a sudden onset of vision loss in his right eye. It is painless and lasted for approximately 5 minutes. He describes the vision loss as a 'black curtain coming down'. On examination, there is a bruit on his neck. What is the SINGLE most likely diagnosis?</p> <p>A. Retinal vein thrombosis B. Retinal artery occlusion C. Amaurosis Fugax D. Optic neuritis E. Acute angle glaucoma</p>
29.	<p>A previously healthy 20 year old woman presents to the Emergency Department with the complaint of "falling out." She was with her friends at a restaurant when she felt faint and, according to friends, lost consciousness for about a minute. There was no seizure activity noted, but the friends did notice her arms twitching irregularly. She is now acting normally. She denies chest pain or palpitations, and her electrocardiogram is normal. What is the SINGLE most likely diagnosis?</p> <p>A. Hypoglycaemia B. Vertigo C. Prolonged QT syndrome D. Vasovagal syncope E. Paroxysmal supraventricular tachycardia</p>
30.	<p>A 50 year old woman presents following a fall. She reports pain and weakness in her hands for several months, swallowing difficulties, and has bilateral wasting of the small muscles of her hands. Her back and shoulders feel stiff. The reflexes in her upper limbs are absent. Both legs show increased tone and hyperreflexia. Pain and temperature sensation are impaired in the upper limbs. She is also noted to have a facial palsy. What is the SINGLE most likely diagnosis?</p> <p>A. Multiple sclerosis B. Motor neuron disease C. Syringobulbia D. Syringomyelia</p>



	E. Myasthenia gravis
31.	<p>A 55 year old chronic alcoholic who lives alone, brought in the emergency department having been found confused at home after a fall. He complains of a headache and gradually worsening confusion. What is the SINGLE most likely diagnosis?</p> <p>A. Vascular dementia B. Hypoglycemia C. Extradural haematoma D. Subdural haematoma E. Pick's dementia</p>
32.	<p>A 45 year old man has been admitted for an elective surgery. 2 days later he develops agitation, sweating and complains of seeing snakes on the hospital wall. A history of chronic alcoholic abuse is revealed and chlordiazepoxide has been started. What is the SINGLE most appropriate next course of action?</p> <p>A. Add Diazepam B. Add Acamprosate C. Add Disulfiram D. Add Thiamine E. Add Naloxone</p>
33.	<p>An 82 year old lady had an ischaemic stroke that was confirmed with brain imaging. She has no drug allergies and no other comorbidities. She was put on aspirin 300mg daily for two weeks. What is the SINGLE most appropriate medication to be given after the course of Aspirin is completed?</p> <p>A. Clopidogrel B. Ticagrelor C. Combination of modified-release dipyridamole and low dose aspirin D. Abciximab E. No additional medication needed long term</p>
34.	<p>A 24 year old woman complains of progressive left leg stiffness and clumsiness over the few weeks. There has also been a history of intermittent blurry vision that spontaneously resolves each time. On examination, there is increased tone, left leg power of 3/5, and upward plantars. A pale disc was seen in ophthalmoscopy. All other neurological examinations were normal. What is the SINGLE most appropriate initial management?</p> <p>A. Non-steroidal anti-inflammatory drug B. Methotrexate C. Interferon-beta D. Methylprednisolone E. Bed rest</p>
35.	<p>A 60 year old man presents to Emergency with dizziness. The onset was sudden and described as "the room spinning around". He also is bumping into things on his right side. On examination, his blood</p>



	<p>pressure is 159/91 mmHg, heart rate is 72 bpm. He is positive for nystagmus and dysdiadochokinesia. CT brain confirms ischaemic stroke. Where is the SINGLE most likely location of his stroke?</p> <p>A. Temporal lobe B. Left parietal lobe C. Right parietal lobe D. Anterior circulation E. Posterior circulation</p>
36.	<p>A 34 year old man is hit by a car. He loses consciousness but is found to be fine by the paramedics. When awaiting doctors review in the Emergency Department he suddenly becomes unconscious. What is the SINGLE most likely diagnosis?</p> <p>A. Subarachnoid haemorrhage B. Subdural haematoma C. Intracerebral haemorrhage D. Extradural (epidural) haematoma E. Whiplash</p>
37.	<p>A 58 year old man has visual hallucinations of animals walking around his room. He is amused by them but is conscious that they are not real. He is noted to have fluctuating levels of awareness and attention and a decline in problem solving ability. Signs of mild parkinsonism are also seen. What is the SINGLE most likely diagnosis?</p> <p>A. Frontotemporal dementia B. Lewy body dementia C. Delirium tremens D. Alzheimer's disease E. Huntington's disease</p>
38.	<p>A 54 year old chronic alcoholic man was admitted in the hospital for a fractured femur 2 days ago. He now has tremors, is profusely sweating, apprehensive and fearful. What is the SINGLE most appropriate treatment?</p> <p>A. Acamprosate B. Chlordiazepoxide C. Lorazepam D. Lofexidine E. Prochlorperazine</p>
39.	<p>A 26 year old woman who is a known epileptic wants to start a family. She takes sodium valproate for her epilepsy which has been well controlled and has been seizure free for the past year. She and her husband have been using condoms as contraception till present. She attends clinic seeking advice regarding her antiepileptic medication as she would like to get pregnant. What is the SINGLE most appropriate advice to give?</p> <p>A. Add ferrous sulphate</p>



	<p>B. Change sodium valproate to carbamazepine C. Advise to stop antiepileptic medication and start folic acid D. Reduce dose of sodium valproate E. No change in medication</p>
40.	<p>A 52 year old lady has weak limbs when examined. She was found to have burn marks on finger tips. Her hands looked wasted and with diminished reflexes. She also has weak spastic legs and dissociated sensory loss. What is the SINGLE most likely diagnosis?</p> <p>A. Multiple sclerosis B. Syringomyelia C. Motor neuron disease D. Guillain-barre E. Friedreich's ataxia</p>
41.	<p>A 75 year old woman has been admitted from a nursing home with sudden onset of right hemiplegia and homonymous hemianopia. She is dysphasic. She remains conscious throughout and on examination, brisk reflexes and several beats of clonus are noted. What is the SINGLE most likely artery to be occluded?</p> <p>A. Right middle cerebral artery B. Left middle cerebral artery C. Right posterior cerebral artery D. Right posterior cerebral artery E. Left basilar artery</p>
42.	<p>A 32 year old female presents with a history of recurring headaches. They are usually unilateral, last for 24–48 hours, have a pulsatile quality, and are associated with nausea and photophobia. The patient describes the headaches as intense, usually requiring her to limit her activities. She has tried several over-the-counter medications with no relief. Which of the following is the SINGLE most appropriate choice for first-line management of her condition?</p> <p>A. Paracetamol oral B. Prednisone oral C. Sumatriptan oral D. Sumatriptan nasal E. Oxycodone oral</p>
43.	<p>79 year old stumbled at home and sustained a minor head injury 2 weeks ago. He did not become unconscious and was well after the fall. His son has brought him to clinic because he has become increasingly confused, drowsy and unsteady over the past few days. He has a GCS of 13. His past medical history includes atrial fibrillation in which he takes warfarin for. What is the SINGLE most likely diagnosis?</p> <p>A. Alzheimers B. Delirium C. Chronic Subdural haemorrhage</p>



	D. Vascular dementia E. Pick's dementia
44.	<p>A 45 year old man presents to the emergency department with acute back pain radiating down to his legs, urinary retention and incontinence. On examination, perineal sensory loss is noted. What is the SINGLE most appropriate investigation?</p> <p>A. MRI B. CT spine C. Plain X-rays D. Dual energy X-ray absorptiometry E. PET CT</p>
45.	<p>A 33 year old woman previously in good health presents with sudden onset of severe occipital headache and vomiting a few hours ago. Her only physical sign on examination is a stiff neck. What is the SINGLE most likely diagnosis?</p> <p>A. Subarachnoid haemorrhage B. Subdural haematoma C. Cerebellar haemorrhage D. Migraine E. Cerebral embolism</p>
46.	<p>A 39 year old chronic alcoholic stopped drinking alcohol for the last 2 days. He is now anxious, has tremors and is sweating profusely. His heart rate is 103 beats/minute. What is the SINGLE most appropriate treatment?</p> <p>A. Naloxone B. Benzodiazepines C. Acamprosate D. Disulfiram E. Haloperidol</p>
47.	<p>A 45 year old chronic alcoholic presents to A&E with an ataxic gait, hallucinations and is confused. He is given chlordiazepoxide. What is the SINGLE most appropriate medication to be given with chlordiazepoxide?</p> <p>A. Acamprosate B. Thiamine C. Diazepam D. Disulfiram E. Haloperidol</p>
48.	<p>A 50 year old man presents to the emergency department with acute back pain radiating down to his right leg. The pain is relieved when lying down and exacerbated by long walks and prolonged sitting. What is the SINGLE most appropriate investigation?</p>



	<p>A. MRI B. CT spine C. X-ray spine D. Dual energy X-ray absorptiometry E. Serum paraprotein electrophoresis</p>
49.	<p>A 44 year old man presents to Emergency after falling from a third floor building. His Glasgow Coma Scale is 4/15. He is intubated and ventilated on arrival. Neurological examination reveals unequal pupils. CT head and neck reveals midline shift and a left-sided convex enhancing area. What is the SINGLE most appropriate next step in management?</p> <p>A. Intravenous mannitol to reduce intracranial pressure B. Intravenous thiopentone to reduce intracranial pressure C. Conservative management with 30 degree head-up D. Urgent craniotomy E. Endovascular coiling under neuroradiological guidance</p>
50.	<p>A 64 year old housewife, known case of uncontrolled hypertension, presents to emergency with dysphagia, right sided hemi-paresis and ataxia. There is also loss of sensation on the left side of the face. Which of the following is the SINGLE most likely area in the brain to be affected?</p> <p>A. Frontal lobe B. Parietal lobe C. Temporal lobe D. Lateral medulla E. Occipital lobe</p>
51.	<p>A 26 year old man was found on the street to be unsteady and drunk by police. On admission to Emergency, he had a sudden onset of headache with severe intensity. The headache is localized to his occipital area and is continuous. On examination, his GCS is 15/15, afebrile and no focal neurological signs. What is the SINGLE most likely diagnosis</p> <p>A. Subdural haemorrhage B. Subarachnoid haemorrhage C. Epidural haemorrhage D. Cluster headache E. Viral meningitis</p>
52.	<p>A 62 year old man has recently had a flu-like illness. He woke up with difficult and unclear articulation of speech. Movement of his eyelids and lips are weak on the right side. What is the SINGLE most likely anatomical site affected?</p> <p>A. Facial nerve B. Hypoglossal nerve C. Oculomotor nerve D. Trigeminal nerve</p>



	E. Glossopharyngeal nerve
53.	<p>A 78 year old male presents with a history of urinary incontinence and change in behavior. On examination, he has a waddling gait. What is the SINGLE most likely diagnosis?</p> <p>A. Subdural hemorrhage B. Brain tumor C. Parkinson's disease D. Psychotic depression E. Normal pressure hydrocephalus</p>
54.	<p>A 49 year old man first presented with increasing difficulty in swallowing. Several months later he developed weakness in his right foot. Now he can no longer feed himself, he chokes on food and has become confined to a wheelchair. What is SINGLE most likely diagnosis?</p> <p>A. Cerebral tumor B. Myasthenia gravis C. Lambert-Eaton syndrome D. Motor neuron disease E. Cerebrovascular disease</p>
55.	<p>A 66 year old man, known case of uncontrolled hypertension, presents to clinic with confusion. He has a past history of transient ischaemic attack where he temporarily suffered from left arm paralysis. Throughout the year, his wife has noticed a decline in his memory, along with clumsy gait which has made him prone to falls, as well as progressive urinary incontinence. On examination, his BMI is 31 kg/m² and has irritable mood. MRI brain showed multiple subcortical lacunar old infarcts. What is the SINGLE most likely diagnosis?</p> <p>A. Vascular dementia B. Lewy body dementia C. Fronto-temporal (Pick's) dementia D. Alzheimer's disease E. Normal pressure hydrocephalus</p>
56.	<p>A 26 year old woman presents to her GP with a headache, photophobia and a fever. On examination, a generalized rash that does not blanch on pressure was observed. What is the SINGLE most appropriate initial management?</p> <p>A. IM benzylpenicillin B. Isolate the patient C. Blood culture D. IV Gentamicin E. IV Ceftriaxone</p>
57.	<p>A 44 year old woman presents with a severe throbbing unilateral right sided headache and photophobia 20 minutes after an episode of tingling and numbness of her left hand. What is the SINGLE most likely diagnosis?</p>



	<p>A. Transient Ischemic Attack B. Migraine C. Meningitis D. Stroke E. Subarachnoid haemorrhage</p>
58.	<p>A 50 year old man complains of being pursued by the police for a crime he denies committing however on further investigation, this was found to be untrue. He has poor concentration and impaired short-term memory. He admits to drinking large amounts of alcohol for the last 20 years. He is able to carry on a coherent conversation, but moments later he is unable to recall that the conversation took place. What is the SINGLE most likely diagnosis?</p> <p>A. Cotard syndrome B. Alcohol withdrawal C. Wernicke's encephalopathy D. Schizophrenia E. Korsakoff psychosis</p>
59.	<p>A 69 year old woman is brought to A&E by ambulance with no significant past medical history or allergies. She presents with speech disturbance and asymmetric facial and arm weakness. The symptoms began 3 hours ago. Brain imaging shows an ischaemic stroke. Which is the SINGLE most appropriate next course of action?</p> <p>A. Anticoagulation B. Administer alteplase C. Administer streptokinase D. Start statins E. Review in 24 hours</p>
60.	<p>A 46 year old chronic alcoholic man is brought to the emergency department in a drowsy state. He is responding vaguely to questions. He denies any alcohol intake today. He walks with an ataxic gait. Examination reveals nystagmus and hyperreflexia.</p> <p>Haemoglobin 128 g/L Mean cell volume (MCV) 99 fL</p> <p>What is the SINGLE most likely cause for his cognitive impairment?</p> <p>A. B1 deficiency B. B6 deficiency C. B12 deficiency D. Folate deficiency E. Liver disease</p>



61.	<p>A 43 year old woman presented with blurred vision and intermittent clumsiness for 3 months. Reflexes are brisk in her arm and optic disc is pale. What is the SINGLE most appropriate test to confirm diagnosis?</p> <p>A. CSF analysis B. CT C. MRI D. EEG E. EMG</p>
62.	<p>A 33 year old man was working late in his office when he had a sudden onset of excruciating headache localized to his right side and associated with right eye pain. He has had similar episodes 2 months ago. On examination, his right eye is swollen and red with lacrimation. What is the SINGLE most likely diagnosis?</p> <p>A. Migraine with aura B. Temporal arteritis C. Conjunctivitis D. Cluster headache E. Tension headache</p>
63.	<p>A 31 year old woman, no known case of medical illnesses, presents to clinic with numbness and tingling of her hands and fingers followed by a severe throbbing headache localized to her left side. At home she tried to relieve her headache with cold packs, paracetamol, and ibuprofen but there was no relief. She has had similar episodes in the past. Currently, she is nauseated. On examination, she required the lights to be dimmed. What is the SINGLE most appropriate next step pharmacological management?</p> <p>A. Perfolgan IV B. Ketoprofen oral C. Sumatriptan oral D. Gabapentin oral E. Topiramate oral</p>
64.	<p>A 68 year old lady complains of falls to the ground without any warning. She maintains consciousness throughout and remembers the event. There is no confusion after the fall. What is the SINGLE most likely diagnosis?</p> <p>A. Stokes Adams attack B. Hypoglycaemia C. Vasovagal syncope D. Drop attacks E. Epilepsy</p>
65.	<p>A 65 year old man has been recently diagnosed with atrial fibrillation. He has suffered from a transient ischaemic attack 3 years ago. His medical history is significant for diabetes mellitus type 2. What is the SINGLE best scoring method to assess the need for anticoagulation?</p>



	<p>A. ABCD2 B. CHA2DS2-VASc C. Well's Score D. CURB-65 E. NYHA Score</p>
66.	<p>A 78 year old woman admitted for a urinary tract infection for the last 10 days has become increasingly confused. Her son has noted her level of consciousness has been fluctuating and is disoriented to time and place. She is more withdrawn but intermittently becomes very noisy and agitated. What is the SINGLE most likely diagnosis?</p> <p>A. Dementia B. Delirium C. Schizophrenia D. Depression E. Cerebral mass</p>
67.	<p>A 30 year old primigravid woman of 32 weeks gestation presents to clinic with left facial droop of 2 days duration. On examination, there is no rash. The nasolabial fold is flattened, there is a drooping of the left corner of her mouth when asked to smile, and eye closure is weaker on the left side. She is unable to puff her cheeks but is able to wrinkle her forehead. What is the SINGLE most likely cause to these clinical findings?</p> <p>A. Ramsay-Hunt syndrome B. Parotid gland tumour C. Bell's palsy D. Internal capsule stroke E. Lyme disease</p>
68.	<p>A 56 year old woman with multiple sclerosis presents with drooping her lips on the left side. She also has loss of sensation over her face, and hearing impairment. She has lack of voluntary coordination of muscle movements. What is the SINGLE most likely anatomical site affected?</p> <p>A. Cerebellum B. Cerebrum C. Spinal cord D. Brain stem E. Optic nerve</p>
69.	<p>A 40 year old woman suddenly collapsed and died. At the post-mortem autopsy, it was found that there was a bleed from a berry aneurysm from the circle of Willis. Which is the most likely space that the bleeding occurred in?</p> <p>A. Subarachnoid B. Subdural C. Extradural</p>



	D. Subparietal E. Brain ventricles
70.	<p>A 7 year old child is brought to the hospital by his teacher. The child was playing with other children and sudden fell down and hit the table and went unconscious for a few seconds before returning to his normal self. On probing further, the diagnosis of absence seizure was made. What is the SINGLE most likely reason that could have led to this diagnosis?</p> <p>A. The child had not eaten since morning B. The child suddenly stared blankly into space and there was up-rolling of eyes C. The child started moving his fingers uncontrollably before he fell D. The child's body became rigid and then started to jerk E. The child has a fever and feels unwell</p>
71.	<p>A 41 year old male with hypertension and recurrent kidney stones presents to the Emergency Department with a headache of intense severity. He is also noted to have neck stiffness and pain. Labs were done and revealed a serum sodium of 131 mmol/L. What is the SINGLE most likely mechanism behind his serum sodium results?</p> <p>A. Decreased intake of food B. Polyuria C. Syndrome of inappropriate anti-diuretic hormone D. None of the above E. All of the above</p>
72.	<p>A 49 year old patient has Parkinson's disease. What is the SINGLE most useful medication in the management of his tremor and dystonia?</p> <p>A. Apomorphine B. Cabergoline C. Selegiline D. Amantadine E. Benzhexol</p>
73.	<p>A 53 year old man presents to clinic with complains of urinary incontinence and erectile dysfunction. He is seen to have ataxia, rigidity and a pill rolling tremor of the hands. On examination, postural hypotension is also noted. What is the SINGLE most likely diagnosis?</p> <p>A. Parkinson's disease B. Creutzfeldt-Jakob disease C. Shy-drager syndrome D. Huntington's disease E. Lewy body dementia</p>
74.	<p>A 26 year old female presents with bladder incontinence, clumsiness when walking, shooting lower back pain, and blurry vision, and sensory loss. These symptoms have occurred all at once or in different combinations approximately every few months and each event lasts 3-4 days. There is</p>



	<p>swelling of the optic disc on fundoscopy, inability to walk heel to toe, and weakness at the hip girdles. What is the SINGLE most appropriate diagnostic test?</p> <p>A. CT head and spinal cord B. MRI brain and spinal cord C. Serum Vitamin B12 levels D. EMG E. None of the above</p>
75.	<p>A 73 year old male presents with a history of falls over the past 12 month. His relatives have also noticed a rather strange behavior lately and more recently he has had episodes of enuresis. Examination reveals that he is disorientation to time and place, with a broad-based, clumsy gait. What is the SINGLE most likely diagnosis?</p> <p>A. Parkinson's disease B. Pituitary adenoma C. Cardiovascular disease D. Syringomyelia E. Normal pressure hydrocephalus</p>
76.	<p>A 54 year old man had a recent stroke. He now presents with ataxia, intentional tremors and dysarthria. Which part of the brain is most likely affected by the stroke?</p> <p>A. Inner ear B. Brain stem C. Diencephalon D. Cerebrum E. Cerebellum</p>
77.	<p>A 22 year old female presents with progressive difficulty in walking due to lower back pain. There is tingling and numbness in her hands that has radiated towards her elbows. On examination, cranial nerves are intact. There is no sensation of vibration or pin prick in her upper limbs to elbows and from lower limbs to hips. There are absent reflexes and mute plantars. Blood pressure is 124/85 mmHg and heart rate is 68 beats/minute. The patient had an episode of food poisoning two months ago. What is the SINGLE most likely diagnosis?</p> <p>A. Multiple sclerosis B. Guillain-Barre syndrome C. Myasthenia gravis D. Diabetic neuropathy E. Infective neuropathy</p>
78.	<p>A 55 year old was admitted to the hospital for investigations of haemoptysis. Two days after admission he develops alternating state of consciousness, sweating, and tremors. His temperature is 37.3°C. He gives a history drinking alcohol every day for the past year. What is the SINGLE most appropriate management?</p>



	<p>A. Acamprosate B. Chlordiazepoxide C. Antibiotics D. High potency vitamin B complex E. Disulfiram</p>
79.	<p>A 28 year old woman complains of double vision. She tires easily especially as the day progresses. There is difficulty climbing stairs, reaching for items on shelves, and brushing her hair. As she speaks, her speech fades gradually. Over the last week, she has had difficulty chewing and swallowing. On examination, there were no significant findings. She has a family history of thyroid disease. What is the SINGLE most likely diagnosis?</p> <p>A. Polymyositis B. Multiple sclerosis C. Guillain-Barré syndrome D. Myasthenia Gravis E. Motor neuron disease</p>
80.	<p>A 63 year old man presents after having a seizure. He is alert and orientated. On examination, inattention on the left side is noticed with hyperreflexia of the arm. What is the SINGLE most likely diagnosis?</p> <p>A. Cerebral tumour B. Pituitary adenoma C. Cerebellar abscess D. Huntington's chorea E. Parkinsonism</p>
81.	<p>A 63 year old man, known case of hypertension and smoker, presents to clinic with a sudden onset of weakness in the right arm and changes in speech which had resolved within a 24 hour period. On examination, there were no residual neurological findings and cardiology examination was normal. What is the SINGLE most appropriate next step in management?</p> <p>A. MRI brain B. CT brain C. Echocardiogram D. Electrocardiogram E. Carotid doppler scanning</p>
82.	<p>A 58 year old man has a progressively worsening headache and confusion. He had a fall three days ago after slipping and hitting his head in the garden. He has a history of alcohol abuse. What is the SINGLE most appropriate investigation?</p> <p>A. X-ray skull B. Electrocardiogram C. Computed tomography brain scan D. Magnetic resonance imaging brain scan</p>



	E. Electroencephalogram
83.	<p>A 67 year old man with a known case of diabetes mellitus type II and prostate carcinoma presents to clinic with back pain, groin numbness, and inability to initiate voiding. Which of the following is the SINGLE most likely mechanism to explain for these symptoms?</p> <p>A. Cauda Equina syndrome B. Urinary outlet obstruction secondary to prostate carcinoma C. Hydronephrosis secondary to urolithiasis D. Neurogenic bladder from long-standing diabetes mellitus type II E. None of the above</p>
84.	<p>A 56 year old male has increased thirst and increased micturition. He is found to have an intracranial tumour. Where is the SINGLE most likely location for the tumour?</p> <p>A. Diencephalon B. Midbrain C. Medulla D. Pons E. Cerebrum</p>
85.	<p>A 75 year old lady on warfarin for atrial fibrillation is brought into clinic by her daughter. Her daughter is concerned as her mother is progressively getting more confused over the last couple of weeks. On physical examination, the lady was noticed to have bruises on her arms. She has an INR of 7. What is the SINGLE most likely diagnosis?</p> <p>A. Alzheimers B. Delirium C. Chronic Subdural haemorrhage D. Vascular dementia E. Pick's dementia</p>
86.	<p>The daughter of a 69 year old male found her father alone in his apartment with confusion, bruising on his left arm and an unsteady gait. CT brain reveals a midline shift away from the side of a clot. What is the SINGLE most likely diagnosis?</p> <p>A. Subarachnoid haemorrhage B. Intracerebral bleed C. Subdural haemorrhage D. Epidural haemorrhage E. Complex partial seizure</p>
87.	<p>A 67 year old woman with a history of atrial fibrillation with presents to emergency with slurred speech, asymmetric facial weakness, left sided hemi-paresis and ataxia. On arrival to the A&E her GCS is 14/15. She is increasingly agitated. Which is the SINGLE most appropriate next course of action?</p> <p>A. Anticoagulation</p>



	<p>B. Start thrombolysis treatment C. Give aspirin D. Give lorazepam E. Urgent CT head</p>
88.	<p>A 34 year old housemaid presents with severe headaches in the back of her head for several days and pain on flexing her neck. The pain is worsened by movements. On examination, there is limited range of movement of the neck. What is the SINGLE most likely diagnosis?</p> <p>A. Subdural haemorrhage B. Cervical spondylosis C. Subarachnoid haemorrhage D. Meningitis E. Cluster headache</p>
89.	<p>A 75 year old nursing home resident complains of worsening headache, and impaired vision for 4 days. Her daughter says she is getting more and more confused day by day. She has multiple bruises on her head. What is the SINGLE most likely cause of her confusion?</p> <p>A. Alcohol intoxication B. Infection C. Subdural haematoma D. Hypoglycaemia E. Hyponatraemia</p>
90.	<p>A previously healthy 2 year old girl is brought to the Emergency Department by her mother after having witnessed the child's body suddenly going stiff followed by uncontrolled twitching of the arms and legs for about 5 minutes. There was frothing at the mouth and on examination now the child is drowsy. Temperature on admission was 38oC. This was a first time event. What is the SINGLE next appropriate management?</p> <p>A. Paracetamol and observation B. Diazepam per rectal C. Lumbar puncture D. CT brain E. EEG</p>
91.	<p>A 45 year old man, with no known medical illnesses, presents to the clinic with left facial pain for the past month. It is a sharp shooting pain that radiates around his left cheek while chewing. It would last a few seconds repeatedly throughout the day. He has taken ibuprofen but with no relief. On examination: blood pressure is 120/70 mmHg, neurological exam is normal, palpation to the left jaw and cheek elicits pain although jaw muscles are of full strength. What is the SINGLE most appropriate management for this condition?</p> <p>A. Amitriptyline B. Patient controlled analgesia C. Gabapentin</p>



	D. Carbamazepine E. Microvascular decompression
92.	<p>A 70 year old man with a known case of ischaemic heart disease presents to emergency with paralysis of his left arm, sensory loss on the left side of his face, right sided gaze preference and homonymous hemianopsia. Which of the following is the SINGLE most likely artery to be affected?</p> <p>A. Right middle cerebral artery B. Right posterior cerebral artery C. Left posterior cerebral artery D. Right anterior cerebral artery E. Basilar artery</p>
93.	<p>A 52 year old man presents with visual hallucinations and features of cognitive impairment including memory loss. He has a tremor and a festinating gait. What is the SINGLE most likely diagnosis?</p> <p>A. Frontotemporal dementia B. Lewy body dementia C. Delirium tremens D. Alzheimer's disease E. Huntington's disease</p>
94.	<p>A 45 year old man presents to clinic for his routine diabetic check-up. The patient has normal tone, 5/5 power, normal plantars and proprioception. There is sensory stimulus on the medial side of the right lower leg. Which of the following is the SINGLE most likely dermatome to be affected?</p> <p>A. L1 B. L2 C. L3 D. L4 E. L5</p>
95.	<p>A 49 year old chronic alcoholic with established liver damage is brought to the hospital after an episode of heavy drinking. He is not able to walk straight and is complaining of double vision. He is shouting obscenities and expletives. What is the SINGLE most likely diagnosis?</p> <p>A. Korsakoff psychosis B. Delirium tremens C. Wernicke's encephalopathy D. Tourettes syndrome E. Alcohol dependence</p>
96.	<p>A 72 year old man becomes confused over a period of 2 weeks. He used to be active and goes for long walks. Now he stares at the wall, barely talks to anyone, and sleeps majority of the day. His daughter recalls that he fell down the stairs about a week before the mental changes began. What is the SINGLE most likely diagnosis?</p>



	<p>A. Chronic Subdural haemorrhage B. Epidural haematoma C. Alzheimers D. Vascular dementia E. Pick's dementia</p>
97.	<p>An 50 year old man presents to the clinic with his wife. She states that her husband has had a noticeable change in personality. He is impulsive and occasionally demonstrates inappropriate behavior. On examination, he has difficulty naming objects, but his memory, ability to calculate, and his visuospatial skills are intact. What is the SINGLE most likely diagnosis?</p> <p>A. Alzheimer's disease B. Frontotemporal dementia (Pick's disease) C. Parkinson's disease D. Wilson's disease E. Lewy body dementia</p>
98.	<p>A 44 year old man with a history of chronic alcohol abuse attends A&E. He is unkempt, drowsy, walks with an ataxic gait and has poor memory. it is believed he has not eaten in forty eight hours. A decision to commence chlordiazepoxide and IV Pabrinex is made. Which vitamin, present in Pabrinex, can prevent the progression of his symptoms?</p> <p>A. Vitamin B1 B. Vitamin B6 C. Vitamin B12 D. Vitamin C E. Vitamin D</p>
99.	<p>A 53 year old chronic alcoholic was brought to the emergency department with an alternating state of consciousness, nausea and vomiting. He has unsteady, uncoordinated walking and complains of double vision. On examination of his face, his eyelids seem to be drooping and nystagmus is seen. He denies having taken alcohol in the last 12 hours. What is the SINGLE most appropriate management?</p> <p>A. Acamprosate B. Chlordiazepoxide C. Diazepam D. High potency vitamin B complex E. Disulfiram</p>
100.	<p>A 31 year old man with no past medical history complains of severe headache since 2 hours ago during work. The headache is mainly localized to the left side and is associated with photophobia. A similar episode had occurred a few months ago which had lasted over 2 weeks and resolved spontaneously. During the examination, he is unable to sit still with obvious agitation and anxiety. What is the SINGLE most likely diagnosis?</p> <p>A. Subarachnoid haemorrhage B. Epidural haemorrhage</p>



	<p>C. Tension headache D. Cluster headache E. Migraine</p>
101.	<p>A 45 year old man has back pain radiating down to his legs. He has motor weakness with knee extension and foot dorsiflexion. On examination, perineal sensory loss is noted. What is the SINGLE most appropriate action?</p> <p>A. Analgesia, rest and review in 6 weeks B. Administer benzodiazepine C. Encourage to keep active and referral to physiotherapist D. Advise on correct sitting position and posture E. Immediate referral to orthopaedic surgeon</p>
102.	<p>A 60 year old woman presents with acute onset of bone and back pain following a rough journey in a car. On examination, tenderness at the mid-thoracic vertebra was noted. The pain is goes away when she bends forward. What is the SINGLE most likely diagnosis?</p> <p>A. Osteoporotic fracture of vertebra B. Myofascial pain syndrome C. Whiplash injury D. Multiple myeloma E. Bone metastasis</p>
103.	<p>A 40 year old woman with a history of epilepsy presents to clinic with multiple fleshy nodules and several light brown, round macules with a smooth border on her back, arms and legs. There are also freckles under her arms. What is the SINGLE most likely diagnosis?</p> <p>A. Neurofibromatosis type I B. Neurofibromatosis type II C. Tuberous sclerosis D. Hereditary haemorrhagic telangiectasia E. Sturge–Weber syndrome</p>
104.	<p>A 31 year old man, known case of alcohol abuse, is brought into Emergency by his friend from a night club. The friend saw the patient suddenly collapse on the dance floor where his body went stiff then there was twitching of his legs followed by involuntary voiding. What is the SINGLE most likely diagnosis?</p> <p>A. Complex partial seizure B. Generalised myoclonic seizure C. Generalised clonic seizure D. Generalised tonic seizure E. Generalised tonic-clonic seizure</p>
105.	<p>An 80 year old man has had an ischaemic stroke and was brought to the A&E department 6 hours after the onset of symptoms by his concerned daughter who found him lying on the floor at home. A</p>



	<p>CT brain has already been done and has confirmed the diagnosis. The patient has no drug allergies and no other comorbidities. What is the SINGLE most appropriate medication to be given to this patient upon discharge?</p> <p>A. Clopidogrel 75 mg daily B. Statin C. Combination of modified-release dipyridamole (200 mg) and low dose aspirin (75 mg) daily D. Warfarin E. Aspirin 300 mg daily for 3 months</p>
106.	<p>A 56 year old lady has developed severe right sided headache which worsens whenever she goes under bright light. This has been occurring for the last 3 days. She feels nauseated, but has not vomited. She does not take any medication and has no relevant medical history. What is the SINGLE most likely diagnosis?</p> <p>A. Subarachnoid haemorrhage B. Chronic subdural haemorrhage C. Intracranial neoplasm D. Cluster headache E. Migraine</p>
107.	<p>A 62 year old male is brought to the emergency department by his daughter as he is confused, and has an unsteady, uncoordinated walking. He is a known alcoholic and has been admitted recently with delirium tremens. On questioning, he denies any problem with his memory. He knows his name and address and convincingly states that he was at a betting shop in the morning. His daughter interjects saying that, that is untrue as he was at home. What is the SINGLE most likely diagnosis?</p> <p>A. Ganser syndrome B. Cotard syndrome C. Wernicke's encephalopathy D. Korsakoff psychosis E. Alcohol withdrawal</p>
108.	<p>An 81 year old man is brought into clinic by his son who is concerned that his father doesn't seem to be himself. His wife died 3 years ago and has been depressed since. The son notes that his father has become increasingly forgetful, leaving taps running or the stove on when not in use. At times, he cannot articulate what he wants to say and is easily confused. CT brain reveals mild, diffuse cortical atrophy. Which of the following is the SINGLE most likely medication to be started first?</p> <p>A. Donepezil B. Memantine C. Haloperidol D. Olanzapine E. Amitriptyline</p>



109.	<p>A 65 year old known alcoholic is brought into hospital with confusion, aggressiveness and ophthalmoplegia. He is treated with chlordiazepoxide. What is the SINGLE most appropriate medication to give alongside chlordiazepoxide?</p> <p>A. IV Antibiotics B. Glucose C. Acamprosate D. Disulfiram E. Vitamin B complex</p>
110.	<p>A 73 year old woman presents to clinic accompanied by her son with a 6 month history of anorexia and altered bowel habits. She has no significant past medical history and is on aspirin. On examination, the patient has an expressionless face, she takes many steps to turn, has resting tremor in predominantly in her right hand, and cogwheel rigidity. Cognition is intact. What is the SINGLE most likely diagnosis?</p> <p>A. Malignancy B. Normal pressure hydrocephalus C. Parkinson's disease D. Progressive supranuclear palsy E. Huntington's disease</p>
111.	<p>A 20 year old fit man suddenly develops severe lower back pain as he is getting up from bed. There is greater pain when he is lying supine with his leg raised. What is the SINGLE most likely diagnosis?</p> <p>A. Paget's disease B. Multiple myeloma C. Lumbosacral disc herniation D. Ankylosing spondylitis E. Cervical spondylosis</p>
112.	<p>A 74 year old woman was brought to clinic by her daughter for confusion and memory impairment. The patient would periodically start a task and forget to finish them and has difficulty naming objects. In the past few months, she has lost 5kg and does not sleep well at night. On examination, the patient was agitated and had decreased skin turgor, and not oriented to time or place. She repeatedly asks the same questions during the interview. What is the SINGLE most likely diagnosis?</p> <p>A. Vascular dementia B. Lewy body dementia C. Fronto-temporal (Pick's) dementia D. Alzheimer's disease E. Normal pressure hydrocephalus</p>
113.	<p>A 43 year old chronic alcoholic stopped drinking alcohol for the last 3 days. He is anxious, has tremors and is now having hallucinations. His heart rate is 106 beats/minute. What is the SINGLE most appropriate treatment?</p>



	<p>A. Olanzapine B. Diazepam C. Acamprosate D. Disulfiram E. Thiamine</p>
114.	<p>A 42 year old female had a sudden onset of severe headache and vomiting. She took paracetamol and an hour later she collapsed. Her medical history is significant for Ehlers-Danlos syndrome. What is the SINGLE most likely diagnosis?</p> <p>A. Subarachnoid haemorrhage B. Viral encephalitis C. Meningitis D. Anaphylaxis E. Epidural haematoma</p>
115.	<p>A 66 year old patient wakes up with slurred speech and right sided weakness. He is brought to the hospital by his wife. A computed tomography was ordered and shows a cerebral infarction. What is the SINGLE most appropriate treatment to be given?</p> <p>A. Aspirin B. Alteplase C. Warfarin D. Streptokinase E. Dipyridamole</p>
116.	<p>A 42 year old man has increasing daytime sleepiness. He feels that his tiredness is affecting his work as he is unable to keep awake during meetings. He also complains of choking episodes during his sleep. On examination, his BMI is 36 kg/m², blood pressure is 150/70 mmHg, and respiratory exam was normal. What is the SINGLE most likely diagnosis?</p> <p>A. Idiopathic hypersomnia B. Narcolepsy C. Hyperventilation syndrome D. Obstructive sleep apnoea syndrome E. Rapid eye movement sleep behavior disorder</p>
117.	<p>A 73 year old female patient presents with right sided hemiplegia and aphasia. These symptoms resolved spontaneously in 6 hours. An ECG conducted in hospital revealed atrial fibrillation. What is the SINGLE best scoring method to assess her risk for future stroke?</p> <p>A. ABCD2 B. CHA₂DS₂-VASc C. Well's Score D. CURB-65 E. NYHA Score</p>



118.	<p>A 19 year old woman complains of episodic headaches preceded by fortification spectra. These episodes can sometimes last for 2-3 days. When these headaches occur, she prefers to be in a quiet, dark room. What is the SINGLE most appropriate management for the acute phase?</p> <p>A. Topiramate B. Aspirin C. Propranolol D. Gabapentin E. Domperidone</p>
119.	<p>A 45 year old man with terminal cancer who has recently completed his course of chemotherapy develops tingling and numbness of the fingertips of both arms. He describes a constant mild burning discomfort in his hands and feet. Occasionally, he experiences a sharp, shooting, and electric-shock-like pain in his feet. What is the SINGLE most likely cause of his symptoms?</p> <p>A. Bone metastasis to cervical vertebrae B. Chemotherapy induced peripheral neuropathy C. Hyponatraemia D. Hypocalcaemia E. Hypomagnesemia</p>
120.	<p>A 45 year old man has tremors in both his hands. The tremors are absent at rest but present when arms are held outstretched and persist on movement. Movements such as writing are affected by his tremor. The tremor is seen to be worse when he is tired or stressed. On examination, the tremor continues to be present even when patient is distracted. What is the SINGLE most likely diagnosis?</p> <p>A. Parkinsonian tremor B. Essential tremor C. Cerebellar disease D. Psychogenic tremor E. Stroke</p>
121.	<p>A 52 year old man has incoherent speech. He is aware of his speech difficulties but finds difficulty in using the right words when speaking. He has no other symptoms apart from his speech issue. He has good comprehension. Which anatomical site is most likely to be affected?</p> <p>A. Broca's area B. Wernicke's area C. Midbrain D. Parietal lobe E. Brainstem</p>
122.	<p>A 65 year old lady presents to the Accident and Emergency department with a 6 hour history of facial droop and weakness on her left side of her body. A CT scan was performed and ruled out a haemorrhagic stroke. She is allergic to Penicillin and takes Simvastatin and Amlodipine regularly. What is the SINGLE most appropriate medication to be prescribed long term for this patient?</p>



	<p>A. Alteplase B. Clopidogrel C. Dipyridamole D. Labetalol E. Aspirin</p>
123.	<p>A 38 year old heroin addict was involved in a car crash and is now paraplegic. He was agitated and cried everyday during the first two weeks after the accident while in the hospital. On questioning, he is not able to remember the accident and refuses to talk about it. What is the SINGLE most likely diagnosis?</p> <p>A. Post traumatic stress disorder B. Severe depression C. Bipolar disorder D. Organic brain injury E. Borderline personality</p>
124.	<p>A 33 year old man presents with speech difficulties. He has a an irregular breakdown of articulation. On examination, nystagmus is seen. Which anatomical site is most likely to be affected?</p> <p>A. Midbrain B. Pons C. Cerebellum D. Cerebrum E. Vestibule cochlear nerve</p>
125.	<p>A 43 year old man presents with neck stiffness, headache and vomiting. The headache is severe, persistent and on the left side. He also has ear pain and discharge coming from his left ear. On examination, he has weakness of the right hand and leg. He has a temperature of 38.5°C. What is the SINGLE most likely diagnosis?</p> <p>A. Viral meningitis B. Bacterial meningitis C. Mycotic aneurysm D. Cerebral abscess E. Cerebral tumour</p>
126.	<p>A 68 year old man had a fall down the stairs. His daughter has brought him into the emergency department where he was having lucid intervals. Shortly after admission he becomes unconscious. What is the SINGLE most likely vessel affected?</p> <p>A. Basilar artery B. Bridging veins C. Vertebral artery D. Diploic vein E. Middle meningeal artery</p>



127.	<p>A 42 year old lady presents with a history of double vision, ptosis and facial numbness. Which anatomical site is the most likely to be affected?</p> <p>A. Cerebral cortex B. Trigeminal nerve C. Oculomotor nerve D. Brainstem E. Basal ganglia</p>
128.	<p>A 43 year old smoker presents with double vision. She tires easily, has difficulty climbing stairs, and reaching for items on shelves. On examination, reflexes are absent but elicited after exercise. The power in shoulder abduction after repeated testing is 4+/5 from 3/5. What is the SINGLE most likely pathology associated with this patient's diagnosis?</p> <p>A. Thyrotoxicosis B. Thrombotic event C. Diabetes D. Cerebral vascular event E. Lung cancer</p>
129.	<p>A 44 year old woman has a two week history of electric shock-like stabbing facial pain starting from her left jaw and radiates towards her forehead. The pain is unilateral and it is described as very severe and coming in spasms. Her corneal reflexes are found to be normal. What is the SINGLE most likely diagnosis?</p> <p>A. Trigeminal neuralgia B. Temporomandibular joint disorder C. Atypical facial pain D. Giant cell arteritis (GCA) E. Herpes zoster ophthalmicus</p>
130.	<p>A 25 year old woman presents with a severe headache. She had migraines for the last 14 years but has been symptom free for the last year. There are no other neurological signs. She has no other medical history of note. Her observations are stable. What is the SINGLE most appropriate investigation for this woman?</p> <p>A. Computed tomography of head B. Lumbar puncture C. Ophthalmoscope D. Magnetic resonance imaging of head E. No further investigation required</p>
131.	<p>A 71 year old lady has a history of a fall 3 days ago with an injury to the head. She is increasingly drowsy and has recently become confused and disoriented. What is the SINGLE most likely vessel to be involved?</p> <p>A. Diploic vein</p>



	<p>B. Cerebral vein C. Basal vein D. Middle meningeal vein E. Middle meningeal artery</p>
132.	<p>54 year old patient is seen at the clinic for muscle weakness. His muscle weakness initially started at the level of his legs but now it is affecting his arms too. On examination, he has loss of tendon reflexes and decreased muscle strength. What is the SINGLE most likely mechanism of this weakness?</p> <p>A. Amyloid deposition in neurons B. Vasculitis C. Reduction in the number of nicotinic acetylcholine at the postsynaptic muscle membrane D. Autoimmune degeneration of myelin sheaths of peripheral neurons E. Compression of spinal nerve</p>
133.	<p>An 8 year old boy developed a seizure first affecting his right arm. The seizure lasted for several minutes. He was unconscious throughout the seizure and has no recollection of the events that occurred leading to his seizure. A computed tomography scan of his head was organised after the seizure and has been reported as having a lesion on the left cerebral hemisphere. What is the SINGLE most likely reason for his seizure?</p> <p>A. Epilepsy B. Space occupying lesion C. Dementia D. Huntington's chorea E. Intracranial hypertension</p>



OBSTETRICS & GYNAECOLOGY



1.	<p>A 17 year old has acute pain around his right eye that started a week ago with blistering inflamed rashes in the dermatome distribution of the ophthalmic division of the trigeminal nerve. What is the SINGLE most likely diagnosis?</p> <p>A. Postherpetic neuralgia B. Herpes simplex C. Ramsay Hunt syndrome D. Cellulitis E. Herpes zoster ophthalmicus</p>
2.	<p>A 55 year old man presents with a mild headache, ocular pain and a red eye. He also complains of nausea. He has intermittent blurring of vision with haloes. There was no history of trauma. Palpation of the globe of the eye reveals it to be hard. What is the SINGLE most appropriate management?</p> <p>A. Panretinal photocoagulation B. Pilocarpine eye drops C. Propranolol D. Scleral buckling E. Analgesia and rest</p>
3.	<p>A 60 year old man experienced sudden painless loss of vision. On ophthalmoscopy, multiple flame shaped hemorrhages were seen scattered throughout his fundus. What is the SINGLE most likely diagnosis?</p> <p>A. Central retinal artery occlusion B. Central retinal vein occlusion C. Acute glaucoma D. Retinitis pigmentosa E. Optic neuritis</p>
4.	<p>A 34 year old man has an acute painful, red right eye for the last 24 hours. He complains of blurring of vision. He has a past medical history of cervical spondylitis and is on chronic diclofenac treatment for the past 4 years for back pain and stiffness. On examination, his pupil is irregular in shape and he is very sensitive to light. What is the SINGLE most likely clinical diagnosis?</p> <p>A. Acute close-angle glaucoma B. Conjunctivitis C. Episcleritis D. Iridocyclitis E. Keratitis</p>
5.	<p>A 33 year old man has an acute painful, red right eye for the last 24 hours. He complains of blurring of vision. He had a similar episode a year ago. His pupil is irregular in shape and he is very sensitive to light. He has been taking diclofenac for three years now because of back pain and stiffness. What is the SINGLE most likely clinical diagnosis?</p> <p>A. Acute close-angle glaucoma</p>



	<p>B. Conjunctivitis C. Episcleritis D. Iritis E. Keratitis</p>
6.	<p>A 48 year man who has been taking medications for asthma for several years has now presented with decreased vision on his right eye. He complains of glare especially during the night. What SINGLE medication is most likely to cause his visual deterioration?</p> <p>A. Inhaled salbutamol B. Inhaled steroids C. Aminophylline D. Theophylline E. Oral steroids</p>
7.	<p>An 82 year old woman has developed a painful blistering rash on one side of her forehead and anterior scalp. She also has a red eye, decreased visual acuity and epiphora alongside the forehead tenderness. What is the SINGLE most likely nerve affected?</p> <p>A. Accessory nerve B. Facial nerve C. Olfactory nerve D. Optic nerve E. Trigeminal nerve</p>
8.	<p>A 35 year old HIV positive man presents with progressive visual deterioration. He complains of blurred vision and floaters. On examination, multiple cotton wool spots are seen in both eyes. What is the SINGLE most likely causative organism?</p> <p>A. Herpes zoster B. Cryptosporidium C. Cytomegalovirus D. Pneumocystis jiroveci pneumonia E. Cryptococcus neoformans</p>
9.	<p>A 25 year old man has a burning sensation in his left eye for the last 2 days. His eye is red and has thick purulent discharge. His lids are often stuck shut on waking. What is the SINGLE most appropriate initial management?</p> <p>A. Oral antibiotic B. Oral antihistamine C. Topical antibiotics D. Topical antibiotics and topical steroids E. Clean discharge using cotton wool soaked in water</p>



10.	<p>A 45 year old woman had her visual acuity checked at her local optician. Several hours later she presents to the emergency department with severe ocular pain and redness in her eye. She also complains of seeing coloured halos. What SINGLE anatomical structure is most likely to be involved?</p> <p>A. Iris B. Ciliary body C. Anterior chamber D. Posterior chamber E. Cornea</p>
11.	<p>A 33 year old man presents to clinic with a history of early morning back pain, stiffness and a painful red right eye. The pain in the eye started last night. On examination, his right pupil is seen to have a distorted pupil shape. His visual acuity is unaffected. What is the SINGLE most likely affected anatomical structure?</p> <p>A. Optic nerve B. Iris C. Cornea D. Conjunctiva E. Sclera</p>
12.	<p>A 30 year old woman has a sudden acute headache with nausea and vomiting. She has a red, painful left eye. The symptoms started when she was watching television in a dark room. Palpation of the globe reveals it to be hard. What is the SINGLE most likely visual symptom?</p> <p>A. Paracentral scotoma B. Peripheral visual field loss C. Coloured halos D. Floaters E. Glares</p>
13.	<p>A 48 year old man attends clinic for a routine eye check up as he has a history of type 1 diabetes. Fundoscopy shows neovascularization at the retina. What is the SINGLE most appropriate management?</p> <p>A. Strict blood glucose control B. Review in 12 months C. Non urgent referral to specialist D. Insulin E. Laser photocoagulation</p>
14.	<p>A 68 year old patient attends for retinal screening. He is found to have hard exudates, macular oedema and arteriovenous nipping. He is on long term treatment with nifedipine. What is the SINGLE most likely diagnosis?</p> <p>A. Macular degeneration B. Hypertension retinopathy</p>



	<p>C. Non-proliferative diabetic retinopathy D. Proliferative diabetic retinopathy E. Open angle glaucoma</p>
15.	<p>A 67 year old man has deteriorating vision in his left eye. His complaints that his vision has been slowly getting more blurry over the last few months. Glare from the headlights of cars is particularly a problem when driving at night. He has a history of longstanding COPD and is on multiple drugs for it. What SINGLE medication is most likely to cause his visual deterioration?</p> <p>A. Salmeterol B. Oral corticosteroid C. Tiotropium D. Theophylline E. Inhaled corticosteroid</p>
16.	<p>A 34 year old homosexual man attends clinic with a history of weight loss and progressive visual deterioration. A fundoscopic examination reveals retinal haemorrhages and yellow-white areas with perivascular exudates. What is the SINGLE most appropriate causative organism?</p> <p>A. Mycobacterium avium B. Herpes simplex virus C. Haemophilus influenzae D. Cytomegalovirus E. Pneumocystis jiroveci</p>
17.	<p>A 44 year old man has sudden severe eye pain, red eye, visual blurring. It started when he went to watch a movie in the theatre. It was accompanied by nausea and vomiting. Slit-lamp findings include shallow anterior chambers in both eyes with corneal epithelial oedema. What is the SINGLE most likely diagnosis?</p> <p>A. Central retinal vein occlusion B. Acute closed angle glaucoma C. Uveitis D. Iritis E. Open angle glaucoma</p>
18.	<p>A 44 year old hypertensive male, loses vision in his left eye overnight. There is no pain or redness associated with his visual loss. On fundoscopy, venous dilation, tortuosity, and retinal haemorrhages are observed on his left eye. No abnormalities are found on his right eye on fundoscopy. What is the SINGLE most likely cause of his unilateral visual loss?</p> <p>A. Hypertension retinopathy B. Central Retinal Artery Occlusion C. Central Retinal Vein Occlusion D. Background retinopathy E. Retinal detachment</p>



19.	<p>A 49 year old man has sudden complete loss of vision from his left eye over a couple of seconds. There was no pain associated with it and there is no redness of the eye. Ophthalmoscopy reveals a pale retina with a cherry red spot at the macula and attenuation of the vessels. What is the SINGLE most likely diagnosis?</p> <p>A. Central retinal artery occlusion B. Central retinal vein occlusion C. Branch retinal artery occlusion D. Branch retinal vein occlusion E. Open angle glaucoma</p>
20.	<p>A 52 year old man presents with sudden complete loss of vision from the right eye. He also had been complaining of right sided headaches which would come up more on chewing. On fundoscopy, the retina was pale and a cherry red spot could be seen in the macular region. What is the SINGLE most likely cause of vision loss?</p> <p>A. Central retinal artery occlusion B. Central retinal vein occlusion C. Branch retinal artery occlusion D. Branch retinal vein occlusion E. Open angle glaucoma</p>
21.	<p>A 63 year old woman has progressive decrease in her visual acuity and peripheral visual field loss. She is shortsighted and needs to wear glasses. On examination, she has normal pupils on both eyes. What is the SINGLE most likely diagnosis?</p> <p>A. Cataract B. Glaucoma C. Retinal detachment D. Iritis E. Giant cell arteritis</p>
22.	<p>A 27 year old female was brought to the emergency department by her friend from a movie theatre. She complains of sudden severe pain in the eye followed by vomiting. She sees coloured halos, has blurry vision and a red eye. She gives a past history of recurrent headaches which used to resolve spontaneously. Examination shows fixed, dilated ovoid pupils. What is the SINGLE most initial investigation?</p> <p>A. CT head B. MRI orbits C. Blood culture and sensitivity D. Toxicology screen E. Ocular tonometry</p>
23.	<p>A 52 year old man has a painful, red, photophobic right eye with slightly blurred vision and watering for 2 days. He has no similar episodes in the past. On slit lamp examination, there are cells and flare in</p>



	<p>the anterior chamber. The pupil is also sluggish to react. What is the SINGLE most appropriate clinical diagnosis?</p> <p>A. Acute close-angle glaucoma B. Acute conjunctivitis C. Acute dacryocystitis D. Acute iritis E. Corneal foreign body</p>
24.	<p>A 33 year old woman started seeing tiny black dots followed by a painless sudden loss of vision in her left eye a few hours ago. She says that it initially felt like a curtain was falling down. On fundoscopy, the optic disc is normal. What is the SINGLE most likely underlying pathology?</p> <p>A. Iritis B. Glaucoma C. Vitreous chamber D. Retinal detachment E. Central retinal artery occlusion</p>
25.	<p>A 70 year old man who has a medical history of diabetes mellitus and hypertension experiences acute monocular blindness which resolves after 30 minutes. He describes this as a curtain coming down vertically into the field of vision of one eye. What is the SINGLE most likely diagnosis?</p> <p>A. Giant cell arteritis B. Optic neuritis C. Lacunar infarct D. Pontine haemorrhage E. Amaurosis fugax</p>
26.	<p>A 45 year old man with type 1 diabetes mellitus has his annual check ups. Ophthalmoscopy shows dot and blot haemorrhage with hard exudates. What is the SINGLE most likely diagnosis?</p> <p>A. Macular degeneration B. Retinal detachment C. Multiple sclerosis D. Diabetic background retinopathy E. Diabetic proliferative retinopathy</p>
27.	<p>A 54 year old myopic develops flashes of light and then sudden painless loss of vision. He says that it initially felt like a curtain was falling down. Ophthalmoscope shows a grey opalescent retina, ballooning forward. What is the SINGLE most appropriate treatment?</p> <p>A. Pilocarpine B. Peripheral iridectomy C. Scleral buckling D. IV acetazolamide E. Surgical extraction of lens</p>



28.	<p>A 48 year old woman presents with severe left-sided headaches, ocular pain and a red, watering eye. She has intermittent blurring of vision and sees coloured haloes. What is the SINGLE most appropriate next step of action?</p> <p>A. Measure intraocular pressure B. Relieve pain with aspirin C. Administer 100% oxygen D. Computed tomography E. Relieve pain with sumatriptan</p>
29.	<p>A 32 year old woman has progressive decrease in vision over the past 3 years on both eyes. She is myopic and wears glasses. She is now almost blind. What is the SINGLE most likely diagnosis?</p> <p>A. Cataract B. Glaucoma C. Retinopathy D. Uveitis E. Keratitis</p>
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31.	<p>A 62 year old man complains of headaches and decreased vision. He has a blood pressure of 170/95 mmHg. Fundoscopy reveals disc swelling and a flame shaped haemorrhage. What is the SINGLE most likely diagnosis?</p> <p>Plab Lab Values</p> <p>A. Macular degeneration B. Hypertension retinopathy C. Non-proliferative diabetic retinopathy D. Proliferative diabetic retinopathy E. Open angle glaucoma</p>
32.	<p>A 40 year old man has pain, redness and swelling over the nasal end of his right lower eyelid. The eye is watery with some purulent discharge. The redness extends on to the nasal peri-orbital area and mucoid discharge can be expressed from the lacrimal punctum. What is the SINGLE most appropriate clinical diagnosis?</p>



	<p>A. Acute conjunctivitis B. Acute dacryocystitis C. Acute iritis D. Retrobulbar neuritis E. Scleritis</p>
33.	<p>A 20 year old man comes with a 3 day history of a burning red left eye with sticky greenish discharge. For the past few mornings, he says that his eyelids are stuck shut on waking. What is the SINGLE most likely affected anatomical structure?</p> <p>A. Iris B. Ciliary body C. Cornea D. Conjunctiva E. Sclera</p>
34.	<p>A 37 year old lady has been suffering from early morning stiffness of her small joints for several months. She takes regular NSAIDS to manage the pain of her joints. She attends clinic with a painful red eye. What is the SINGLE most likely affected anatomical structure?</p> <p>A. Iris B. Ciliary body C. Cornea D. Sclera E. Conjunctiva</p>
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36.	<p>A 38 year old female has reduced vision and eye pain both eyes. She has had a similar episode about a year ago which resolved completely within 3 months. She says that the red colour appears "washed out". On physical examination, mild weakness of right upper limb was appreciated and exaggerated reflexes was appreciated. What is the SINGLE most appropriate management?</p> <p>A. Panretinal photocoagulation B. Pilocarpine eye drops C. Corticosteroids D. Peripheral iridectomy E. Surgical extraction of lens</p>



37.	<p>A 60 year old woman has decreased vision over the past year. She is not able to see well at night. She has changed her spectacles several times recently due to refraction changed but she still complains of glare. She has a normal pupil on examination. What is the SINGLE most likely diagnosis?</p> <p>A. Cataract B. Glaucoma C. Retinal detachment D. Iritis E. Giant cell arteritis</p>
38.	<p>Which of the following is not a degenerative corneal disease?</p> <p>A. Band keratopathy B. Pellucid marginal degeneration C. Mooren's ulcer D. Terrien marginal degeneration E. Keratoconus</p>
39.	<p>A 49 year old woman complains of reduction of vision and dull pain in her left eye for the past 2 weeks. Her past medical history includes multiple sclerosis which was diagnosed 2 years ago. On examination, both pupils constrict when light is directed to the right eye but both pupils fail to constrict fully when light is directed to the left eye. What is the SINGLE most likely defect to accompany her diagnosis?</p> <p>A. Paracentral scotoma B. Monocular visual field loss C. Bitemporal hemianopsia D. Central scotoma E. Homonymous hemianopia</p>
40.	<p>A 32 year old woman complains of dull pain in her right eye for the past one week which worsens when moving her eye. Her past medical history includes multiple sclerosis which was diagnosed 6 months ago. An ophthalmoscopy shows pallor of the optic disc. Which anatomical site is most likely to be affected?</p> <p>A. Optic nerve B. Sclera C. Optic radiation D. Trigeminal nerve E. Oculomotor nerve</p>
41.	<p>A 41 year old man presents with visual symptoms and a headache. An ophthalmoscopic examination shows papilloedema. Which anatomical site is most likely to be affected?</p> <p>A. Retina B. Optic disc C. Optic radiation</p>



	D. Macula E. Optic chiasma
42.	<p>A 33 year old female complains of double vision which started yesterday. On examination, a fixed dilated pupil which does not accommodate and drooping eyelid can be seen on the left eye. Her left eye is displaced outward and downwards. She has no significant past medical history. There was no history of trauma. What is the SINGLE most appropriate investigation to perform?</p> <p>A. Ophthalmoscopy B. Computed tomographic angiography C. Thyroid function test D. Visual field test E. Red reflex examination</p>
43.	<p>A 62 year old hypertensive man comes into clinic with blurred vision. He usually takes amlodipine to manage his blood pressure and has been taking it for the past 10 years. His blood pressure currently ranges between 150/90 mmHg to 160/100 mmHg. An ophthalmoscope reveals dot blot haemorrhages, ischaemic changes and hard exudates. What is the SINGLE most likely diagnosis?</p> <p>A. Macular degeneration B. Central retinal vein occlusion C. Hypertensive retinopathy D. Proliferative diabetic retinopathy E. Non-proliferative diabetic retinopathy</p>
44.	<p>A 39 year old woman has been having gradual loss of vision in both eyes over the past 6 months. She has a diagnosis of rheumatoid arthritis and has been on treatment for it for the past 4 years. Her intraocular pressure is within normal limits and red reflex is absent in both eyes. What is the SINGLE most likely diagnosis?</p> <p>A. Cataract B. Diabetic retinopathy C. Hypermetropia D. Macular degeneration E. Hypertensive retinopathy</p>



OPHTHALMOLOGY

SAMPLE



45.	<p>A 17 year old has acute pain around his right eye that started a week ago with blistering inflamed rashes in the dermatome distribution of the ophthalmic division of the trigeminal nerve. What is the SINGLE most likely diagnosis?</p> <p>A. Postherpetic neuralgia B. Herpes simplex C. Ramsay Hunt syndrome D. Cellulitis E. Herpes zoster ophthalmicus</p>
46.	<p>A 55 year old man presents with a mild headache, ocular pain and a red eye. He also complains of nausea. He has intermittent blurring of vision with haloes. There was no history of trauma. Palpation of the globe of the eye reveals it to be hard. What is the SINGLE most appropriate management?</p> <p>A. Panretinal photocoagulation B. Pilocarpine eye drops C. Propranolol D. Scleral buckling E. Analgesia and rest</p>
47.	<p>A 60 year old man experienced sudden painless loss of vision. On ophthalmoscopy, multiple flame shaped hemorrhages were seen scattered throughout his fundus. What is the SINGLE most likely diagnosis?</p> <p>A. Central retinal artery occlusion B. Central retinal vein occlusion C. Acute glaucoma D. Retinitis pigmentosa E. Optic neuritis</p>
48.	<p>A 34 year old man has an acute painful, red right eye for the last 24 hours. He complains of blurring of vision. He has a past medical history of cervical spondylitis and is on chronic diclofenac treatment for the past 4 years for back pain and stiffness. On examination, his pupil is irregular in shape and he is very sensitive to light. What is the SINGLE most likely clinical diagnosis?</p> <p>A. Acute close-angle glaucoma B. Conjunctivitis C. Episcleritis D. Iridocyclitis E. Keratitis</p>
49.	<p>A 33 year old man has an acute painful, red right eye for the last 24 hours. He complains of blurring of vision. He had a similar episode a year ago. His pupil is irregular in shape and he is very sensitive to light. He has been taking diclofenac for three years now because of back pain and stiffness. What is the SINGLE most likely clinical diagnosis?</p> <p>A. Acute close-angle glaucoma</p>



	<p>B. Conjunctivitis C. Episcleritis D. Iritis E. Keratitis</p>
50.	<p>A 48 year man who has been taking medications for asthma for several years has now presented with decreased vision on his right eye. He complains of glare especially during the night. What SINGLE medication is most likely to cause his visual deterioration?</p> <p>A. Inhaled salbutamol B. Inhaled steroids C. Aminophylline D. Theophylline E. Oral steroids</p>
51.	<p>An 82 year old woman has developed a painful blistering rash on one side of her forehead and anterior scalp. She also has a red eye, decreased visual acuity and epiphora alongside the forehead tenderness. What is the SINGLE most likely nerve affected?</p> <p>A. Accessory nerve B. Facial nerve C. Olfactory nerve D. Optic nerve E. Trigeminal nerve</p>
52.	<p>A 35 year old HIV positive man presents with progressive visual deterioration. He complains of blurred vision and floaters. On examination, multiple cotton wool spots are seen in both eyes. What is the SINGLE most likely causative organism?</p> <p>A. Herpes zoster B. Cryptosporidium C. Cytomegalovirus D. Pneumocystis jiroveci pneumonia E. Cryptococcus neoformans</p>
53.	<p>A 25 year old man has a burning sensation in his left eye for the last 2 days. His eye is red and has thick purulent discharge. His lids are often stuck shut on waking. What is the SINGLE most appropriate initial management?</p> <p>A. Oral antibiotic B. Oral antihistamine C. Topical antibiotics D. Topical antibiotics and topical steroids E. Clean discharge using cotton wool soaked in water</p>



54.	<p>A 45 year old woman had her visual acuity checked at her local optician. Several hours later she presents to the emergency department with severe ocular pain and redness in her eye. She also complains of seeing coloured halos. What SINGLE anatomical structure is most likely to be involved?</p> <p>A. Iris B. Ciliary body C. Anterior chamber D. Posterior chamber E. Cornea</p>
55.	<p>A 33 year old man presents to clinic with a history of early morning back pain, stiffness and a painful red right eye. The pain in the eye started last night. On examination, his right pupil is seen to have a distorted pupil shape. His visual acuity is unaffected. What is the SINGLE most likely affected anatomical structure?</p> <p>A. Optic nerve B. Iris C. Cornea D. Conjunctiva E. Sclera</p>
56.	<p>A 30 year old woman has a sudden acute headache with nausea and vomiting. She has a red, painful left eye. The symptoms started when she was watching television in a dark room. Palpation of the globe reveals it to be hard. What is the SINGLE most likely visual symptom?</p> <p>A. Paracentral scotoma B. Peripheral visual field loss C. Coloured halos D. Floaters E. Glares</p>
57.	<p>A 48 year old man attends clinic for a routine eye check up as he has a history of type 1 diabetes. Fundoscopy shows neovascularization at the retina. What is the SINGLE most appropriate management?</p> <p>A. Strict blood glucose control B. Review in 12 months C. Non urgent referral to specialist D. Insulin E. Laser photocoagulation</p>
58.	<p>A 68 year old patient attends for retinal screening. He is found to have hard exudates, macular oedema and arteriovenous nipping. He is on long term treatment with nifedipine. What is the SINGLE most likely diagnosis?</p> <p>A. Macular degeneration B. Hypertension retinopathy</p>



	<p>C. Non-proliferative diabetic retinopathy D. Proliferative diabetic retinopathy E. Open angle glaucoma</p>
59.	<p>A 67 year old man has deteriorating vision in his left eye. His complaints that his vision has been slowly getting more blurry over the last few months. Glare from the headlights of cars is particularly a problem when driving at night. He has a history of longstanding COPD and is on multiple drugs for it. What SINGLE medication is most likely to cause his visual deterioration?</p> <p>A. Salmeterol B. Oral corticosteroid C. Tiotropium D. Theophylline E. Inhaled corticosteroid</p>
60.	<p>A 34 year old homosexual man attends clinic with a history of weight loss and progressive visual deterioration. A funduscopic examination reveals retinal haemorrhages and yellow-white areas with perivascular exudates. What is the SINGLE most appropriate causative organism?</p> <p>A. Mycobacterium avium B. Herpes simplex virus C. Haemophilus influenzae D. Cytomegalovirus E. Pneumocystis jiroveci</p>
61.	<p>A 44 year old man has sudden severe eye pain, red eye, visual blurring. It started when he went to watch a movie in the theatre. It was accompanied by nausea and vomiting. Slit-lamp findings include shallow anterior chambers in both eyes with corneal epithelial oedema. What is the SINGLE most likely diagnosis?</p> <p>A. Central retinal vein occlusion B. Acute closed angle glaucoma C. Uveitis D. Iritis E. Open angle glaucoma</p>
62.	<p>A 44 year old hypertensive male, loses vision in his left eye overnight. There is no pain or redness associated with his visual loss. On fundoscopy, venous dilation, tortuosity, and retinal haemorrhages are observed on his left eye. No abnormalities are found on his right eye on fundoscopy. What is the SINGLE most likely cause of his unilateral visual loss?</p> <p>A. Hypertension retinopathy B. Central Retinal Artery Occlusion C. Central Retinal Vein Occlusion D. Background retinopathy E. Retinal detachment</p>



63.	<p>A 49 year old man has sudden complete loss of vision from his left eye over a couple of seconds. There was no pain associated with it and there is no redness of the eye. Ophthalmoscopy reveals a pale retina with a cherry red spot at the macula and attenuation of the vessels. What is the SINGLE most likely diagnosis?</p> <p>A. Central retinal artery occlusion B. Central retinal vein occlusion C. Branch retinal artery occlusion D. Branch retinal vein occlusion E. Open angle glaucoma</p>
64.	<p>A 52 year old man presents with sudden complete loss of vision from the right eye. He also had been complaining of right sided headaches which would come up more on chewing. On fundoscopy, the retina was pale and a cherry red spot could be seen in the macular region. What is the SINGLE most likely cause of vision loss?</p> <p>A. Central retinal artery occlusion B. Central retinal vein occlusion C. Branch retinal artery occlusion D. Branch retinal vein occlusion E. Open angle glaucoma</p>
65.	<p>A 63 year old woman has progressive decrease in her visual acuity and peripheral visual field loss. She is shortsighted and needs to wear glasses. On examination, she has normal pupils on both eyes. What is the SINGLE most likely diagnosis?</p> <p>A. Cataract B. Glaucoma C. Retinal detachment D. Iritis E. Giant cell arteritis</p>
66.	<p>A 27 year old female was brought to the emergency department by her friend from a movie theatre. She complains of sudden severe pain in the eye followed by vomiting. She sees coloured halos, has blurry vision and a red eye. She gives a past history of recurrent headaches which used to resolve spontaneously. Examination shows fixed, dilated ovoid pupils. What is the SINGLE most initial investigation?</p> <p>A. CT head B. MRI orbits C. Blood culture and sensitivity D. Toxicology screen E. Ocular tonometry</p>
67.	<p>A 52 year old man has a painful, red, photophobic right eye with slightly blurred vision and watering for 2 days. He has no similar episodes in the past. On slit lamp examination, there are cells and flare in</p>



	<p>the anterior chamber. The pupil is also sluggish to react. What is the SINGLE most appropriate clinical diagnosis?</p> <p>A. Acute close-angle glaucoma B. Acute conjunctivitis C. Acute dacryocystitis D. Acute iritis E. Corneal foreign body</p>
68.	<p>A 33 year old woman started seeing tiny black dots followed by a painless sudden loss of vision in her left eye a few hours ago. She says that it initially felt like a curtain was falling down. On fundoscopy, the optic disc is normal. What is the SINGLE most likely underlying pathology?</p> <p>A. Iritis B. Glaucoma C. Vitreous chamber D. Retinal detachment E. Central retinal artery occlusion</p>
69.	<p>A 70 year old man who has a medical history of diabetes mellitus and hypertension experiences acute monocular blindness which resolves after 30 minutes. He describes this as a curtain coming down vertically into the field of vision of one eye. What is the SINGLE most likely diagnosis?</p> <p>A. Giant cell arteritis B. Optic neuritis C. Lacunar infarct D. Pontine haemorrhage E. Amaurosis fugax</p>
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72.	<p>A 48 year old woman presents with severe left-sided headaches, ocular pain and a red, watering eye. She has intermittent blurring of vision and sees coloured haloes. What is the SINGLE most appropriate next step of action?</p> <p>A. Measure intraocular pressure B. Relieve pain with aspirin C. Administer 100% oxygen D. Computed tomography E. Relieve pain with sumatriptan</p>
73.	<p>A 32 year old woman has progressive decrease in vision over the past 3 years on both eyes. She is myopic and wears glasses. She is now almost blind. What is the SINGLE most likely diagnosis?</p> <p>A. Cataract B. Glaucoma C. Retinopathy D. Uveitis E. Keratitis</p>
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80.	<p>A 38 year old female has reduced vision and eye pain both eyes. She has had a similar episode about a year ago which resolved completely within 3 months. She says that the red colour appears "washed out". On physical examination, mild weakness of right upper limb was appreciated and exaggerated reflexes was appreciated. What is the SINGLE most appropriate management?</p> <p>A. Panretinal photocoagulation B. Pilocarpine eye drops C. Corticosteroids D. Peripheral iridectomy E. Surgical extraction of lens</p>



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84.	<p>A 32 year old woman complains of dull pain in her right eye for the past one week which worsens when moving her eye. Her past medical history includes multiple sclerosis which was diagnosed 6 months ago. An ophthalmoscopy shows pallor of the optic disc. Which anatomical site is most likely to be affected?</p> <p>A. Optic nerve B. Sclera C. Optic radiation D. Trigeminal nerve E. Oculomotor nerve</p>
85.	<p>A 41 year old man presents with visual symptoms and a headache. An ophthalmoscopic examination shows papilloedema. Which anatomical site is most likely to be affected?</p> <p>A. Retina B. Optic disc C. Optic radiation</p>



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86.	<p>A 33 year old female complains of double vision which started yesterday. On examination, a fixed dilated pupil which does not accommodate and drooping eyelid can be seen on the left eye. Her left eye is displaced outward and downwards. She has no significant past medical history. There was no history of trauma. What is the SINGLE most appropriate investigation to perform?</p> <p>A. Ophthalmoscopy B. Computed tomographic angiography C. Thyroid function test D. Visual field test E. Red reflex examination</p>
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88.	<p>A 39 year old woman has been having gradual loss of vision in both eyes over the past 6 months. She has a diagnosis of rheumatoid arthritis and has been on treatment for it for the past 4 years. Her intraocular pressure is within normal limits and red reflex is absent in both eyes. What is the SINGLE most likely diagnosis?</p> <p>A. Cataract B. Diabetic retinopathy C. Hypermetropia D. Macular degeneration E. Hypertensive retinopathy</p>



ORTHOPAEDIC SAMPLE



1.	<p>A 58 year old woman fell with an outstretched hand. She presents with dinner fork deformity and tenderness over the right arm. She complains of numbness of the hand. What is the SINGLE most likely associated nerve injury?</p> <p>A. Axillary nerve B. Radial nerve C. Musculocutaneous nerve D. Median nerve E. Ulnar nerve</p>
2.	<p>A 62 year old man has bone pain at his hips and back. On further investigation, alkaline phosphatase was found to be elevated in his blood. An X-ray shows multifocal sclerotic patches in the skull. What is the SINGLE most likely diagnosis?</p> <p>A. Paget's disease B. Osteoporosis C. Osteomalacia D. Multiple myeloma E. Ankylosing spondylitis</p>
3.	<p>A 15 year old boy presents with a limp and pain in the left knee. Physical examination shows the leg is externally rotated and 2 cm shorter. There is limitation of flexion, abduction and medial rotation. As the hip is flexed, it external rotates. What is the SINGLE most likely diagnosis?</p> <p>A. Juvenile rheumatoid arthritis B. Osgood-schlatter disease C. Reactive arthritis D. Slipped upper femoral epiphysis E. Transient synovitis of the hip</p>
4.	<p>A 2 year old girl presents with a painless limp. On examination, there is unequal skin folds and the left leg is shorter than the right leg. What is the SINGLE most likely diagnosis?</p> <p>A. Transient synovitis B. Developmental dysplasia of the hip C. Perthes' disease D. Juvenile idiopathic arthritis E. Slipped capital femoral epiphysis</p>
5.	<p>A 33 year old woman with a previous history of pain at the left wrist following a fall on her outstretched hand 4 months ago presents with pain in the same wrist below the thumb. She has not seek any medical advice or treatment prior to this. She says that the pain is aggravated when she holds her baby. What is the SINGLE most likely cause?</p> <p>A. Fracture radial head B. Scaphoid fracture C. Carpal tunnel syndrome</p>



	D. Colles' fracture E. Ulnar fracture
6.	<p>A 24 year old man falls on an outstretched hand while playing football. He comes in complaining of pain at the base of the thumb. On physical examination, he is tender to palpate over the anatomic snuff-box. Wrist movement, particularly pronation followed by ulnar deviation is painful. X-rays are read as negative. What is the SINGLE most appropriate next management?</p> <p>A. Reassurance and analgesia B. Surgery C. Immobilization of the wrist and review in 2 weeks D. Scaphoid cast for 6 weeks E. High arm sling and rest</p>
7.	<p>A 26 year old primigravida pregnant woman at 34 weeks gestation presents with tingling and numbness with occasional pain of her right hand in addition to altered sensation over her right middle and index finger. Tinel test is negative. What is the SINGLE most likely diagnosis?</p> <p>A. Carpal Tunnel Syndrome B. Radial nerve entrapment C. Scaphoid fracture D. Median nerve entrapment E. Peripheral arterial disease</p>
8.	<p>A 7 year old boy falls on his right hand with the arm extended. He has severe pain around the elbow. X-ray imaging show a supracondylar fracture of the humerus. The distal fragment is displaced posteriorly. What is the SINGLE most likely structure to be damage?</p> <p>A. Anterior ulnar recurrent artery B. Posterior ulnar recurrent artery C. Ulnar artery D. Radial artery E. Brachial artery</p>
9.	<p>An 80 year old woman with mild dementia at a nursing home tripped and fell on her hand. X-ray revealed a fracture of the distal end of the radius with a 10 degree dorsal angulation. What is the SINGLE best management for her?</p> <p>A. Closed reduction of the fracture B. Open reduction and internal fixation C. Above elbow backslab cast D. Plaster of Paris cast below elbow E. Wrist sling</p>
10.	<p>A 30 year old lady was playing volleyball when her hand got injured with the volleyball. The right hand is not swollen and there is tenderness under the root of the thumb. Wrist movement, particularly</p>



	<p>pronation followed by ulnar deviation is painful. X-ray of the wrist show no presence of fractures. What is the SINGLE most appropriate next step in management?</p> <p>A. Apply arm sling for 1 week B. Reassurance and analgesia C. Repeat X-ray in 2 weeks D. Full arm cast for 1 week E. Surgical exploration</p>
11.	<p>A 13 year old boy presents with pain in the groin. He is seen limping. There was no history of trauma. There is limited hip motion, and as the hip is flexed the thigh goes into external rotation and cannot be rotated internally. When the boy is lying down, the left leg is 2 cm shorter than the right leg and it is externally rotated. What is the SINGLE most likely diagnosis?</p> <p>A. Juvenile rheumatoid arthritis B. Septic arthritis C. Reactive arthritis D. Slipped upper femoral epiphysis E. Transient synovitis of the hip</p>
12.	<p>A 60 year old man is brought to the emergency department with a fractured hip. He has been having progressive hearing loss and was recently diagnosed with cardiac failure. Hypercalcaemia was noted on his blood test. What is the SINGLE most likely diagnosis?</p> <p>A. Paget's disease B. Osteoporosis C. Osteomalacia D. Multiple myeloma E. Spondylosis</p>
13.	<p>A 7 year old boy fell on his outstretched arm and presents with pain around the elbow. On examination, radial pulse is absent on the affected hand. What is the SINGLE most likely diagnosis?</p> <p>A. Dislocated elbow B. Angulated supracondylar fractures of the humerus C. Undisplaced fracture of radial head D. Posterior dislocation of shoulder E. Pulled elbow</p>
14.	<p>A 19 year old boy comes to the emergency department with pain, swelling and tenderness 2 cm distal to Lister's tubercle of radius. He gives a history of falling down on his outstretched hand while playing basketball. On examination, proximal pressure on the extended thumb and index finger is painful. X-ray of the wrist shows no fracture visible. What is the SINGLE most appropriate management?</p> <p>A. Immobilization of wrist with cast and review in 2 weeks B. High arm sling and rest C. Magnetic resonance imaging of wrist</p>



	D. Surgical exploration E. Reassurance and analgesia
15.	<p>A 44 year old man slipped while he was coming down the stairs and he fell on his outstretched arm. X-rays demonstrate an oblique fracture of the middle to distal thirds of the humerus. He is unable to dorsiflex his right wrist. What is the SINGLE most likely associated nerve injury?</p> <p>A. Radial nerve B. Musculocutaneous nerve C. Median nerve D. Ulnar nerve E. Axillary nerve</p>
16.	<p>A 63 year old man has knee pain and back pain for the last 3 months which is progressively worsening. Bowing of the tibia is noted on examination. He also has pronounced kyphosis. On further investigation, alkaline phosphatase was found to be elevated in his blood. Serum calcium levels were normal. What is the SINGLE most likely diagnosis?</p> <p>A. Multiple myeloma B. Osteoporosis C. Osteomalacia D. Paget's disease E. Ankylosing spondylitis</p>
17.	<p>A 79 year old man had a fall 2 days ago and since then he is unable to bear weight on his right leg. He presents with deformity and tenderness over the right hip area. X-ray shows fracture of the acetabulum. What is the SINGLE most likely associated nerve injury?</p> <p>A. Sciatic nerve B. Gluteal nerve C. Lateral peroneal nerve D. Tibial nerve E. Femoral nerve</p>
18.	<p>A 35 year old male typist suffered a wrist injury after falling on his right outstretched hand. He was treated with a scaphoid cast with the probable diagnosis of a scaphoid fracture. The cast was removed after 2 weeks from the injury for a repeat X-ray. After removing the cast, he noted that he he had difficulty in moving his right thumb, index and middle finger. There was also a tingling sensation on those fingers. What is the SINGLE most likely management that would improve his symptoms?</p> <p>A. Release of flexor retinaculum B. Release of common flexor sheath C. Release of palmar aponeurosis D. Ulnar nerve release E. Fasciotomy</p>



19.	<p>A 28 year old man was involved in a road traffic accident. He has severe pain in his shoulder and upper arm. There is loss of shoulder and arm function with bruising seen at the anterior shoulder on examination. X-ray shows a fracture of the neck of humerus. What is the SINGLE most associated neurovascular injury?</p> <p>A. Suprascapular nerve injury B. Radial nerve injury C. Axillary artery injury D. Brachial artery injury E. Axillary nerve injury</p>
20.	<p>A 55 year old woman has a history of a recent radial fracture. In the last decade, she had a colles' fracture in the right forearm and supracondylar humerus fracture of the left arm. She used to take corticosteroids for 2 years as part of managing her inflammatory bowel disease. What is the SINGLE most appropriate investigation to perform?</p> <p>A. Dual-energy X-ray absorptiometry (DEXA) scan B. Magnetic resonance imaging C. Nuclear bone scan D. Computed tomography E. Bone biopsy</p>
21.	<p>A 33 year old pregnant woman presents with right knee pain worse when moving the joint. The pain has been present for the last 4 months but it is worsening. The pain is noted to be worse at the end of the day. X-ray shows decreased joint space in the right knee. Blood results show a CRP of 12. What is the SINGLE most appropriate management?</p> <p>A. Paracetamol B. Oral nonsteroidal anti-inflammatory drugs (NSAIDs) C. Oral steroid D. Intra-articular steroid injections E. Disease-modifying antirheumatic drugs (DMARDs)</p>
22.	<p>A 33 year old woman fell from playing volleyball and hit her right knee. Valgus stress test is seen to be positive. What is the SINGLE most likely structure that is injured?</p> <p>A. Anterior cruciate ligament B. Posterior cruciate ligament C. Lateral collateral ligament D. Medial collateral ligament E. Meniscus</p>
23.	<p>A 7 year old boy fell in the playground with arm outstretched an hour ago. He is now seen to be holding his forearm complaining of pain. Examination of his forearm reveals tenderness but no sign of deformity or swelling. An X-ray was performed. What is the SINGLE most likely diagnosis?</p> <p>A. Greenstick fracture of distal radius</p>



	<p>B. Oblique fracture of the mid ulna C. Transverse fracture of the mid radius D. Spiral fracture of the distal ulna E. Comminuted fracture of scaphoid</p>
24.	<p>A 35 year old volleyball player has pain in his right arm and shoulder for the past 2 days. He finds it difficult to perform task which involve lifting his arm above his shoulder. His shoulder feels weak. The shoulder pain is worse at night when he is in bed. There is no history of trauma. What is the SINGLE most likely cause of his pain?</p> <p>A. Rupture of the long head of biceps B. Acromioclavicular ligament tear C. Sternocleidomastoid injury D. Supraspinatus tendinitis E. Shoulder dislocation</p>
25.	<p>A 33 year old woman has complaints of pain in her right arm and shoulder when she abducts it. The pain is worse at night and disturbs her sleep. She finds it difficult to perform task which involve lifting her arm such as combing her hair. She has recently moved to a new house and was involved in carrying heavy items. There is no history of trauma. What is the SINGLE most likely cause of her pain?</p> <p>A. Rupture of the long head of biceps B. Acromioclavicular ligament tear C. Sternocleidomastoid injury D. Supraspinatus tendinitis E. Shoulder dislocation</p>
26.	<p>A 15 year old boy presents with fever and pain in the right lower thigh. The pain has been ongoing for the past one month. On examination, there is a 2 cm by 2 cm mass at the lower third of his thigh which is red, warm and tender. An X-ray shows bone destruction with overlying onion-skin layers of periosteal bone formation and a soft tissue mass. What is the SINGLE most likely diagnosis?</p> <p>A. Tuberculous arthritis B. Ewing's sarcoma C. Osteosarcoma D. Osteomyelitis E. Fibrosarcoma</p>
27.	<p>A 26 year old man complains of severe pain while trying to grasp objects. It started when he fell during a skiing trip and hit his thumb on the ground while his thumb was abducted. On physical exam there is collateral laxity at the thumb-metacarpophalangeal joint with bruising over the joint. What is the SINGLE most likely deformity?</p> <p>A. Dinner fork deformity B. Gamekeeper thumb C. Mallet finger D. Cubitus varus</p>



	E. Garden spade deformity
28.	<p>A 12 year old boy attends A&E with pain after falling off his bicycle. A lateral X-ray of his wrist show a fracture at the distal radius with the distal fracture fragment displaced anteriorly. What is the SINGLE most likely diagnosis?</p> <p>A. Dinner fork deformity B. Cubitus valgus C. Gunstock deformity D. Garden spade deformity E. Coxa Vara</p>
29.	<p>A 61 year old female with a history of osteoporosis suddenly falls on her outstretched hand while shopping. X-ray of the wrist shows a fracture at the distal radius with a backward shift of the distal fragment. What is the SINGLE most likely deformity?</p> <p>A. Cubitus valgus B. Coxa Vara C. Mallet finger D. Dinner fork deformity E. Garden spade deformity</p>
30.	<p>A 24 year old man presents to A&E after an injury to his hand while playing basketball. Examination of his hand reveals an avulsion of the extensor digitorum tendon from the distal phalanx. What is the SINGLE most likely deformity?</p> <p>A. Dinner fork deformity B. Gamekeeper thumb C. Mallet finger D. Gunstock deformity E. Garden spade deformity</p>
31.	<p>A 67 year old woman presents to the emergency department with pain in her left groin. She falls from a chair in the waiting area and now is in severe pain and is not able to move her left leg. She takes alendronate regularly. What is the SINGLE most likely diagnosis?</p> <p>A. Pelvic fracture B. Bursitis C. Femoral shaft fracture D. Femoral neck fracture E. Posterior hip dislocation</p>
32.	<p>A 15 year old boy complains of pain in his leg which usually settles within an hour of taking aspirin. The pain is described as a dull pain which is persistent but is usually worse at night. What is the SINGLE most likely diagnosis?</p> <p>A. Leiomyosarcoma</p>



	<p>B. Liposarcoma C. Chondrosarcoma D. Exostosis E. Osteoid osteoma</p>
33.	<p>A 79 year old woman has a history of a Colles' fracture three weeks ago after falling on a concrete floor with her right hand. She is otherwise fit and well. What is the SINGLE most appropriate investigation to assess her risk for further fracture?</p> <p>A. Radionuclide (isotope) scan B. Dual energy X-ray absorptiometry (DEXA) scan C. Magnetic resonance imaging (MRI) D. X-ray of wrist E. No further investigations required</p>
34.	<p>A 59 year old woman has severe back pain. The back pain is suspected to be caused by bone metastases. What organ is the SINGLE most likely tumour arising from causing bone metastases?</p> <p>A. Lungs B. Cervix C. Ovary D. Uterus E. Breast</p>
35.	<p>A 60 year old female has pain and stiffness in her right hip joint. The pain has been worsening over the past 6 months. The pain increases in intensity as the day progresses and it is usually least pain in the morning. She has noticed nodules in the joints of the fingers of her hands. A recent blood test shows:</p> <p>Haemoglobin 92 g/L White cell count $9.8 \times 10^9/L$ Platelets $250 \times 10^9/L$</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Rheumatoid arthritis B. Osteoarthritis C. Gout D. Pseudogout E. Multiple myeloma</p>



PAEDIATRIC

SAMPLE



1.	<p>A 7 month old baby is admitted with a 3 day history of coughing. He has a temperature of 38.5°C. On examination, there is marked subcostal recession and widespread wheeze is noted bilaterally. His respiratory rate is 60 breaths/minute. What is the SINGLE most appropriate initial management?</p> <p>A. Supportive care B. Oral prednisolone C. Intravenous hydrocortisone D. Intramuscular adrenaline E. Nebulised salbutamol</p>
2.	<p>A 2 year old girl previously well is brought to A&E by her mother with a history of vomiting and diarrhoea for the last 2 days. She is unable to keep any food or liquid down in the past day. What is the SINGLE most suitable indication for intravenous fluids administration?</p> <p>A. Capillary refill time > 4 seconds B. Heart rate > 90 beats/minute C. Respiratory rate > 25 breaths/minute D. Passing of watery stools more than eight times a day E. Current weight < 10 kg</p>
3.	<p>A 4 year old girl is taken by her mother to the emergency department and complains of pain during urination and feeling generally unwell. She has a temperature of 38.5°C. What is the SINGLE most appropriate initial action?</p> <p>A. Suprapubic aspiration B. Clean catch of urine C. Catheter for sample of urine D. Renal ultrasound E. DMSA scan</p>
4.	<p>An 18 month old boy has been brought to the emergency department by his mother because he has been refusing to move his left arm and crying more than usual for the past 24 hours. He has recently been looked after by his mother's new partner while she attended college. Assessment shows multiple bruises on his body and the medial aspect of his left upper arm. What is the SINGLE most appropriate next step?</p> <p>A. Admit under care of pediatrician B. Discharge with painkillers C. Start IV centrist one D. Follow up in paediatric outpatient department E. Follow up with GP</p>
5.	<p>A 4 year old boy is brought to clinic by his worried mother complaining that he is still unable to keep dry at night. There was no period where he managed to stay dry during the night. The mother wants to know if anything can be done to resolve this issue. He is dry during the day. His medical history is insignificant and there is no history of recurrent urinary tract infections. What is the SINGLE most appropriate management?</p>



	<p>A. Desmopressin B. Reassurance C. Behavioural therapy D. Enuresis alarm E. Referral to surgery</p>
6.	<p>A 3 week old female infant has recently become jaundiced. Her mother has breastfed her since she was born. Test have ruled out other causes of jaundice and the diagnosis of breast milk jaundice is made. She is otherwise well. What is the SINGLE most appropriate management?</p> <p>A. Phototherapy B. Exchange transfusion C. Increase fluid intake D. Continue breastfeeding E. Stop breastfeeding completely</p>
7.	<p>A 2 week old male, term infant presents to the Emergency Department with a sudden onset of green, bilious vomiting for two hours and blood in diapers. Abdominal x-ray reveals dilatation of the stomach and in the proximal loops of the bowel. Barium enema indicates partial obstruction of the duodenum and malposition of the caecum. Which of the following is the SINGLE most likely diagnosis?</p> <p>A. Jejunal atresia B. Hypertrophic pyloric stenosis C. Malrotation and volvulus D. Acute appendicitis E. Intussusception</p>
8.	<p>A 3 year old boy attends clinic with a history of diarrhea on and off. The mother describes the stool as bulky, frothy and difficult to flush. He looks pale and wasted on examination. What is the SINGLE most likely investigation that would lead to a diagnosis?</p> <p>A. Sweat chloride test B. Anti-endomysial antibodies C. Liver function test D. Ultrasound abdomen E. Thyroid function test</p>
9.	<p>A 4 week old female infant presents to the Emergency Department with vomiting after every feed. The mother describes the vomiting as projectile and non-bilious. The child is also constipated. On examination, there is a right sided olive-sized abdominal mass on palpation. What is the SINGLE most appropriate next step of action?</p> <p>A. Abdominal ultrasound B. Abdominal x-ray C. Intravenous fluids</p>



	D. Serum potassium level E. Nasogastric tube insertion
10.	<p>A 4 year old boy, who recently immigrated from Kenya with his parents, presents to clinic with intermittent watery diarrhea, foul-smelling flatulence, nausea, and abdominal pain. His weight is less than the fifth percentile for his age. On examination, he has a fever of 38°C and is dehydrated. Which of the following is the most likely to confirm his diagnosis?</p> <p>A. Abdominal ultrasound B. Complete blood count C. Liver function test D. ESR E. Stool microscopy for ova and parasites</p>
11.	<p>An infant soon after birth developed difficulty in breathing with intercostal recession and nasal flaring. He is afebrile. On examination, there is diminished breath sounds. On examining the mother's notes, there was a history of spontaneous rupture of membranes 48 hours before delivery of baby. The mother was 36 weeks gestation when the baby was delivered. What is the SINGLE most appropriate initial investigation?</p> <p>A. Blood culture B. Chest X-ray C. Stool culture D. Sputum culture E. Maternal high vaginal swab</p>
12.	<p>A 7 year old child presented with chronic cough and is also found to be jaundiced on examination. What is the SINGLE most likely diagnosis?</p> <p>A. Congenital diaphragmatic hernia B. Congenital cystic adenomatoid malformation C. Bronchiolitis D. Respiratory distress syndrome E. Alpha 1 antitrypsin deficiency</p>
13.	<p>A 6 year old boy presents to clinic with obesity. He has a history of failure to thrive as an infant. He is now behind in school, has difficulty interacting with friends, and feeds constantly. His mother says he cannot stop eating. What is the SINGLE most likely diagnosis?</p> <p>A. Cushing's disease B. Congenital hypothyroidism C. Primary hypoparathyroidism D. Prader Willi syndrome E. Down's syndrome</p>
14.	<p>A 2 year old boy fell off his tricycle and hurt his arm. He got up and was about to start crying but before there was any sound, he went pale, and unconscious. He recovered after 2 minutes but</p>



	<p>remained pale. His colour came back after a few minutes. His mother was concerned at that time that he was going to die. She is very worried and mentions that he had a similar episode 2 months ago after falling down some steps. What is the SINGLE most appropriate next step?</p> <p>A. CT head B. Electroencephalogram (EEG) C. Full blood count (FBC) D. Reassure E. Skeletal survey</p>
15.	<p>A 6 month old boy is admitted with persistent irritability. He is lethargic and is not feeding well. He has a temperature of 38.2°C, a capillary refill time of 2 seconds and a respiratory rate of 34 breaths/minute. Urine reveals leukocytes on a dipstick. What is the SINGLE investigation most likely to lead to diagnosis?</p> <p>A. Blood culture B. Erythrocyte sedimentation rate (ESR) C. Chest X-ray D. Urine culture and sensitivity E. CSF analysis</p>
16.	<p>A 15 month old male infant arrives to clinic for his measles, mumps, rubella (MMR) vaccine. On examination, he has a temperature of 37.5°C and has acute otitis media. There is also a family history of egg allergy. What is the SINGLE most appropriate action?</p> <p>A. Do not give the vaccine B. Give half the vaccine dose C. Give paracetamol followed by vaccine D. Give paracetamol with future doses of vaccines E. Defer vaccine until the child is well</p>
17.	<p>A 3 year old male presents to the Emergency Department with a left-sided irreducible firm swelling near the groin. The swelling would descend when the child cries. On examination, both testicles are palpable in the scrotum. What is the SINGLE most appropriate management?</p> <p>A. Reassurance B. Emergency herniotomy C. Elective herniotomy D. Emergency herniotomy and orchidopexy E. Elective herniotomy and orchidopexy</p>
18.	<p>A 4 year old girl presents to the emergency center with difficulty breathing and stridor. She has a temperature of 39.1°C. The parents state that the child had been in her usual state of health but awoke with a hoarse voice, and difficulty swallowing. They tell you that she has not been immunised because they are afraid of the side effects of the vaccination. What is the SINGLE most likely diagnosis?</p>



	<p>A. Cystic fibrosis B. Acute Epiglottitis C. Immunodeficiency D. Inhaled foreign body E. Recurrent aspiration</p>
19.	<p>A 3 year old boy is brought to A&E after having a generalized tonic-clonic seizure that lasted approximately 5 minutes. The parents say that he was previously well but started developing symptoms of a cold earlier in the morning. He is noted to have a fever of 39°C. What is the SINGLE most likely diagnosis?</p> <p>A. Infant spasms B. Absence seizures C. Epilepsy D. Partial complex seizure E. Febrile convulsion</p>
20.	<p>A 6 week old formula fed baby boy is found at under the healthy child programme to be deeply jaundiced. His weight gain is poor. His stools are pale and urine colour is dark. What is the SINGLE most likely diagnosis?</p> <p>A. Galactosaemia B. Biliary atresia C. Glucose-6-phosphate dehydrogenase (G6PD) deficiency D. Rhesus incompatibility E. Congenital viral infection</p>
21.	<p>A 2 year old has atrophy of the buttocks. He has often has bloating of his abdomen with frequent offensive, smelly stool that are difficult to flush. He looks pale on examination. What is the SINGLE most appropriate initial investigation?</p> <p>A. Sweat chloride test B. Anti-endomysial antibodies C. Upper gastrointestinal endoscopy D. Colonoscopy E. Stool culture</p>
22.	<p>A 4 week old male infant presents to the Accident & Emergency Department with vomiting after every feed. The mother describes the vomiting as projectile and non-bilious in nature. The child is also constipated and has not passed stool or flatus for 3 days. On examination, there is a right sided olive-sized abdominal mass on palpation. What is the SINGLE most appropriate next step of action to diagnose the condition?</p> <p>A. Abdominal ultrasound B. Abdominal X-ray C. Intravenous fluids D. Serum potassium level</p>



	E. Nasogastric tube insertion
23.	<p>A 3 month old term female infant presents to clinic with frequent episodes of non-projectile vomiting after feeds. The mother complains it is difficult to breastfeed her child. On examination, the infant is irritable and she is below centiles on the growth chart in terms of weight. What is the SINGLE most likely diagnosis?</p> <p>A. Pyloric stenosis B. Duodenal atresia C. Hypothyroidism D. Gastro-oesophageal reflux disease E. Tracheo-oesophageal fistula</p>
24.	<p>A 4 month old, healthy female infant presents to clinic for her routine immunizations of DTP, Hib, polio, MenB, and pneumococcal vaccines. At her 3 month immunization, she cried and was irritable for 3 hours followed by a fever that lasted for 2 days. Which of the following is the SINGLE most appropriate action now?</p> <p>A. Do not give the vaccines B. Give half the vaccine doses C. Give paracetamol followed by vaccines D. Proceed with standard immunization schedule E. Defer vaccines for 2 weeks</p>
25.	<p>A 3 year old child is admitted to hospital for a very high fever. He is discovered to be below the 25th percentile for weight. After a week in hospital, his weight improves from 10 kg to 11kg upon discharge. A week later, he is readmitted with pneumonia. His weight upon admission is back to 10kg and improved to 11.5kg at the end of 10 days upon discharge. What is the SINGLE most likely cause of his fluctuating weight?</p> <p>A. Leukaemia B. Cystic fibrosis C. Non-accidental injury D. HIV/AIDS infection E. Pulmonary fibrosis</p>
26.	<p>Parents of a 3 month old baby are worried about cot death. What is the SINGLE most appropriate advice to give in regards to sleeping position and bedding?</p> <p>A. Place baby in a prone position to sleep B. Place baby on his back to sleep C. Place baby on his side to sleep D. Use soft bedding E. Use pillows</p>
27.	<p>A 4 year old is brought to the emergency department by ambulance. His mother reports that he has been unwell with a sore throat. He is sitting on his mother's knee and is tolerating an oxygen mask</p>



	<p>but looks unwell. He has constant noisy breathing and he is drooling saliva. He has a temperature of 39.0°C. What is the SINGLE most likely diagnosis?</p> <p>A. Acute asthma B. Bronchiolitis C. Croup D. Epiglottitis E. Tonsillitis</p>
28.	<p>A 4 month old girl presents with jaundice and failure to thrive. The jaundice was first noticed in the first few weeks of life but her parents were not able to seek medical care. She has pale stools and dark urine. Her spleen is palpable and her liver is enlarged and hard. What is the SINGLE most likely diagnosis?</p> <p>A. Biliary atresia B. Glucose-6-phosphate dehydrogenase (G6PD) deficiency C. Hepatitis B D. Spherocytosis E. Rh incompatibility</p>
29.	<p>A 2 year old boy presents to the Emergency Department with bruising and generalised petechiae that is more prominent over his legs bilaterally. The mother states the child recovered from the flu 2 weeks ago. On examination, there was no hepatosplenomegaly, no lymph node enlargement. Platelet count is 15 000/μL. What is the SINGLE most likely diagnosis?</p> <p>A. Von Willebrand disease B. Acute lymphoblastic leukaemia C. Idiopathic thrombocytopenic purpura D. Thrombotic thrombocytopenic purpura E. Aplastic anaemia</p>
30.	<p>A 6 week old baby is admitted with persistent vomiting and failure to gain weight. Her mother describes the vomiting as projectile and non-bilious. On examination, there is a right sided olive-sized abdominal mass on palpation. Bloods show the following:</p> <p>Na⁺ 138 mmol/l K⁺ 3.3 mmol/l Cl⁻ 83 mmol/l HCO₃⁻ 28 mmol/l</p> <p>What is the SINGLE most appropriate diagnostic test?</p> <p>A. Abdominal ultrasound B. Abdominal x-ray C. CT abdomen D. Tissue transglutaminase (TTG) antibodies (IgA) E. Jejunal biopsy</p>



31.	<p>An 18 month old female child is able to walk up steps, plays well with others in day care, can build blocks, and able to hold crayons scribbling on paper. Her mother is concerned because despite her daughter of having a vocabulary of more than 10 words, she is not able to speak in sentences nor is she able to run. What is the SINGLE best management strategy?</p> <p>A. Arrange hearing test B. Assess development milestones C. Reassurance D. Refer to speech therapist E. MRI brain</p>
32.	<p>A mother who delivered a term infant 8 days ago is now diagnosed with varicella zoster. Her infant is currently afebrile, feeding well, passing stool and urinating without difficulty. Which of the following is the SINGLE most appropriate step in management?</p> <p>A. Isolate the infant from the mother B. Hospitalize the infant in the isolation ward C. Administer aciclovir to the infant D. Administer varicella-zoster immunoglobulin to the infant E. Advise the mother to continue regular well-baby care for the infant</p>
33.	<p>A neonate's chest X-ray shows a double bubble sign. He has low set ears and a flat occiput. What is the SINGLE most likely diagnosis?</p> <p>A. Down's syndrome B. Fragile X syndrome C. Turner's syndrome D. DiGeorge syndrome E. Edward's syndrome</p>
34.	<p>An infant started to have jaundice when he was 2 days old which resolved itself towards day 9. There is an increase in serum bilirubin. What is the SINGLE most likely diagnosis?</p> <p>A. Galactosaemia B. Biliary atresia C. Prolonged jaundice D. Hypothyroidism E. Physiological jaundice</p>
35.	<p>A young anxious mother of a 1 year old boy comes to you requesting a test for cystic fibrosis as her brother died from cystic fibrosis. What is the SINGLE most appropriate investigation?</p> <p>A. Sweat test B. Heel prick test C. Breath test D. Chest X-ray</p>



	E. Genetic testing of parents
36.	<p>A 12 month old male infant presents to clinic because his mother is concerned that the child cannot sit on his own, crawling but not standing with support, unable to pick up small items, and is not socially interactive with his older sibling. What is the SINGLE best management?</p> <p>A. Arrange hearing test B. Assess developmental milestones C. Reassure D. MRI brain E. Referral to physiotherapist</p>
37.	<p>An 8 year old child is brought into A&E with a fractured leg. The parents are unable to explain how the leg fractured. X-rays reveal several other fractures in various stages of healing. The parents cannot explain what might have caused them. On examination, the child has a blue sclerae and difficulty hearing. What is the SINGLE most likely diagnosis?</p> <p>A. Osteogenesis imperfecta B. Non accidental injury C. Haemophilia D. Achondrogenesis E. Wilson's disease</p>
38.	<p>A 3 year old girl ingested 10 capsules from her grandmother's medication bottle thinking it was candy. By the time the child is in the Emergency Department, she is drowsy and lethargic. Paramedics noted myoclonic twitching. ECG reveals tachycardia and widened QRS. Potassium is elevated. What is the SINGLE most likely medication did the child ingest?</p> <p>A. Tricyclic antidepressants B. Acetaminophen C. Thyroxine D. Amiodarone E. Nifedipine</p>
39.	<p>A 2 year old boy is brought to A&E by his mom with a history of severe diarrhoea and vomiting for the last 4 days. He has been unable to keep anything down for the last couple of days. His HR is 160 bpm, BP is 90/50 and his weight is 12 kg. Which is the SINGLE best feature to prompt you to start IV fluid resuscitation?</p> <p>A. Capillary refill of 4 seconds B. Not thirsty C. Weight loss of more than 5% D. Vomited three times or more in the past 24 hours E. Infants who were of low birth weight</p>



40.	<p>A 4 year old girl attends clinic with a history of diarrhea, bloating and abdominal pain. She is failing to thrive. Blood test reveal a hypochromic microcytic anaemia. Alpha gliadin antibodies are positive. What is the SINGLE most likely diagnosis?</p> <p>A. Pernicious anaemia B. Crohn's disease C. Ulcerative colitis D. Coeliac disease E. Whipple's disease</p>
41.	<p>A 6 year old boy is brought to clinic by his mother. She says that he is still unable to keep dry at night and will be attending a sleepover party at a friends house. She says that it would be embarrassing if he wets himself during the sleepover and she wants to know if anything can be done. What is the SINGLE most appropriate management?</p> <p>A. Desmopressin B. Reassurance C. Behavioural therapy D. Enuresis alarm E. Oxybutynin</p>
42.	<p>A 9 year old boy has long arms, legs, fingers and toes. He is tall for his age and is noted to have scoliosis when examining his back. He started wearing glasses at a young age as he was not able to see distance. What is the SINGLE most likely syndrome?</p> <p>A. Osteogenesis imperfecta B. Prader-willi syndrome C. DiGeorge syndrome D. Marfan's syndrome E. Ehlers-Danlos syndrome</p>
43.	<p>A 3 year old boy presents with fever, pallor, and decreased appetite. On examination, there are palpable non-tender nodules along the deep cervical chain in the neck. Blood results show: Hb 10g/dl ; MCV 80 fl ; WCC $2 \times 10^9/L$. What is the SINGLE most likely diagnosis?</p> <p>A. Acute myeloid leukaemia B. Acute lymphoblastic leukaemia C. Chronic myeloid leukaemia D. Chronic lymphocytic leukaemia E. Hodgkin's lymphoma</p>
44.	<p>A 4 year old boy is brought to clinic by his worried mother complaining that he is still unable to keep dry at night. He wets his bed in the middle of the night and has daytime wetting as well.. There was no period where he managed to stay dry during the night. The mother wants to know if anything can be done to resolve this issue. What is the SINGLE most appropriate management?</p> <p>A. Desmopressin</p>



	<p>B. Reassurance C. Behavioural therapy D. Enuresis alarm E. Referral to to secondary care or enuresis clinic</p>
45.	<p>A 6 year old boy is brought into the Emergency Department by his mother's boyfriend with a fever of 37.8°C of 3 days duration. On examination, there are purple spots on his lower back and brownish discoloration on his left forearm with left shoulder dislocation. The child is quiet and makes no eye contact while in conversation. What is the SINGLE most appropriate action to be taken after attending his fever?</p> <p>A. Discharge home with appropriate medications B. Admit patient into general paediatrics ward C. Refer to social services D. Option B and C E. None of the above</p>
46.	<p>A 3 year old child has severe diarrhoea and vomiting. On examination the child looks lethargic, is seen to have dry lips and has sunken eyes. He has a feeble cry. What is the SINGLE best choice of fluids to give intravenously?</p> <p>A. 0.9% Normal saline B. 0.9% Normal saline + 5% Dextrose C. 0.45% Normal saline D. 0.45% Normal saline + 5% Dextrose E. Albumin</p>
47.	<p>A 9 year old girl presents with arthralgia and purpura over her buttocks and extensor surfaces of the legs bilaterally. Laboratory results showed elevated IgA levels and creatinine. What is the SINGLE most likely diagnosis?</p> <p>A. Non-accidental injury B. Henoch-Schonlein purpura C. Bacterial meningitis D. Haemolytic uraemic syndrome E. Idiopathic thrombocytopenic purpura</p>
48.	<p>A 2 year old child presents to the A&E department with drooling, sore throat and loss of voice. He has fever with a temp of 38.9C. His parents tell you that he has not been immunised because they are afraid of the side effects of the vaccination. What is the SINGLE most appropriate immediate management?</p> <p>A. Direct pharyngoscopy B. Summon anaesthetist C. IM Epinephrine D. IV fluids E. Start antibiotics</p>



49.	<p>A 4 week old female infant presents to the Emergency Department with vomiting after every feed. The child is also constipated. On examination, there is a right sided olive-sized abdominal mass on palpation. What is the SINGLE most likely diagnosis?</p> <p>A. Pyloric stenosis B. Duodenal atresia C. Malrotation D. Coeliac disease E. Gastro-oesophageal reflux disease</p>
50.	<p>A 4 year old boy presents to the Emergency Department with fever, bloody diarrhea, decreased urine output after a school field trip at a farm. On examination, the boy is pale, tired, and his face is swollen. Lab results: hematocrit 28%, platelets 72 000/μL. There is blood and protein in urine. What is the SINGLE most likely diagnosis?</p> <p>A. Acute post-streptococcal glomerulonephritis B. Disseminated intravascular coagulation C. Ulcerative colitis D. Intussusception E. Haemolytic uraemic syndrome</p>
51.	<p>A 13 year old girl with several years of elevated liver enzymes of unknown etiology presents to clinic with a slow deterioration in her school performance. On examination, there is hepatosplenomegaly, intention tremor, dysarthria, and dystonia. Her urinalysis has elevated levels of glucose, protein, and uric acid. What is the SINGLE most likely diagnosis?</p> <p>A. Autoimmune hepatitis B. Glycogen storage disease C. α1-Antitrypsin deficiency D. Hereditary haemochromatosis E. Wilson's disease</p>
52.	<p>A 6 year old male presents to the clinic with obesity and short stature. On examination, his BMI >95th percentile. His past medical history is significant for a renal transplant. What is the SINGLE most likely diagnosis?</p> <p>A. Cushing's syndrome B. Congenital hypothyroidism C. Primary obesity D. Prader Willi syndrome E. Down's syndrome</p>
53.	<p>A 1 day old male infant has developed abdominal distension, bilious vomiting, and meconium ileus was present. Prenatal ultrasound had previously revealed echogenic bowel. Which of the following is the SINGLE most likely diagnosis?</p>



	<p>A. Duodenal atresia B. Cystic fibrosis C. Gastroenteritis D. Malrotation and volvulus E. Hirschsprung disease</p>
54.	<p>A 2 year old girl has had a temperature of 39°C, poor appetite, abdominal pain and urinary frequency for the last 3 days. What is the SINGLE most appropriate action?</p> <p>A. Catheter specimen of urine for culture B. Clean catch urine specimen for culture C. Full blood count D. KUB Ultrasound E. Supra-pubic aspirate of urine for culture</p>
55.	<p>A 3 year old child presents with cough and high temperature which began 2 days ago. A rash is noticed on his buccal mucosa. What is the SINGLE most appropriate diagnosis?</p> <p>A. Measles B. Roseola infectiosum C. Rubella D. Chicken pox E. Impetigo</p>
56.	<p>A 4 week old male infant presents with a 10 day history of non-bilious vomiting that has increased in frequency and forcefulness. Despite feeding and looking well, the infant has lost weight. Abdominal ultrasound reveals a thickened pylorus. Which of the following is the SINGLE most appropriate definitive management?</p> <p>A. Normal saline and 5% dextrose B. Potassium chloride C. Pyloromyotomy D. Nasogastric tube insertion E. Barium enema</p>
57.	<p>The newborn screening results of an 8 day old female infant are as follows: TSH 40 mIU/L and T4 70 nmol/L. The mother notes that the child is difficult to feed and does not cry much. On examination, the child has cold mottled skin and weak, floppy muscles. What is the SINGLE most appropriate management?</p> <p>A. Observation and reassess in 3 months B. Propylthiouracil C. Methimazole D. Radioactive iodine E. Levothyroxine</p>



58.	<p>A 12 year old boy presents with severe watery diarrhea for the past 7 days. His urine output is low, mucous membrane are dry, and skin turgor is decreased. What is the SINGLE most appropriate initial management?</p> <p>A. Antibiotic B. Antimotility C. Antiemetic D. Fluid replacement E. Reassurance</p>
59.	<p>A 5 month old child is unable to speak but makes sounds. She can hold things with her palm, but not her fingers. She smiles and laughs and is not shy. She cannot sit independently but can hold her hand and sit when propped up against pillows. What is the SINGLE best development stage to describe this child?</p> <p>A. Normal B. Delayed speech and language development C. Delayed social development D. Delayed fine motor development E. Delayed gross motor development</p>
60.	<p>A 15 year old boy attended the emergency department with shortness of breath. A diagnosis of spontaneous unilateral pneumothorax was made. He is noted to be tall for his age with long arms and fingers. He also has severe scoliosis. What is the SINGLE most likely syndrome?</p> <p>A. Fragile X syndrome B. Prader-willi syndrome C. DiGeorge syndrome D. Marfan's syndrome E. Ehlers-Danlos syndrome</p>
61.	<p>An 8 year old boy presents with severe crushing chest pain. He is tall for his age and has a refractive error for which he wears thick glasses for. What is the SINGLE most likely syndrome?</p> <p>A. Fragile X syndrome B. Prader-willi syndrome C. DiGeorge syndrome D. Marfan's syndrome E. Ehlers-Danlos syndrome</p>
62.	<p>A 5 week old male infant presents to clinic with jaundice during routine check-up. On examination, the baby is irritable, below average centiles for weight, and the liver is enlarged. Pale stools and dark urine on diaper were observed. The mother is currently not breast-feeding and had placed him on formula. What is the SINGLE most likely diagnosis?</p> <p>A. Galactosemia B. Glucose-6-phosphate dehydrogenase (G6PD) deficiency</p>



	<p>C. Rh incompatibility D. Congenital viral infection E. Biliary atresia</p>
63.	<p>A 1 week old male infant, born at 32 weeks gestation, is currently in neonatal ICU and was doing well on increasing nasogastric feedings. The nurse now notes that the infant has been vomiting during the last 2 feedings, is less active, and has blood in his stool. On examination, the abdomen was tense, distended with decreased bowel sounds. Abdominal x-ray reveals distended loops of bowel with air in the bowel wall. What is the SINGLE most appropriate next step in management?</p> <p>A. Emergent exploratory laparotomy B. Reduce volume of feeds per feeding and feed more frequently C. Remove nasogastric tube and replace with transpyloric tube, then switch feeds from nasogastric to nasoduodenal tube D. Stop feeds, begin intravenous fluids, perform abdominal films, and initiate systemic antibiotics E. Continue the same</p>
64.	<p>After several episodes of urinary tract infections, a 2 year old girl undergoes a micturating cystourethrogram which reveals mild dilation of the renal pelvis and reflux into the ureters and kidney. She is currently not on any medication. Which of the following is the SINGLE most appropriate next step in treatment?</p> <p>A. Low dose antibiotic prophylaxis daily B. Observation with weekly urinalysis and urine culture C. Surgical reimplantation of the ureters D. Endoscopic injection of bulking agents E. None of the above</p>
65.	<p>A 12 year old girl presents to clinic with sudden onset of pallor, palpitations, and difficulty breathing while running on the school track. After 30 minutes, her symptoms resolved. This is a first time event and she has never been cyanotic. Cardiac examination was normal. Chest x-ray and echocardiogram were normal. ECG reveals evidence of pre-excitation, delta waves, and prolonged QRS. What is the SINGLE most likely diagnosis?</p> <p>A. Paroxysmal ventricular tachycardia B. Paroxysmal supraventricular tachycardia C. Wolff-Parkinson-White syndrome D. Stokes-Adams pattern E. Excessive stress during exercise</p>
66.	<p>A 3 year old child is brought to the emergency department by his mother with bruises and swelling over the medial aspect of the left arm. X-ray shows multiple callus formation in the ribs. Bruises on the child's back is seen on examination. Analgesia has been given. What is the SINGLE most appropriate next step?</p> <p>A. Check child protection register B. Involve social services</p>



	<p>C. Skeletal survey D. Serum calcium E. DEXA scan</p>
67.	<p>A 2 year old boy presents to the Emergency Department with painless rectal bleeding for the past 2 days. On examination, the child is afebrile, tachycardic, alert, playful, and feeding well. Abdominal examination was normal. Which of the following is the SINGLE most likely diagnosis?</p> <p>A. Intussusception B. Ulcerative colitis C. Hirschsprung disease D. Volvulus E. Meckel's diverticulum</p>
68.	<p>A 10 year old boy presents to the Emergency Department having fallen from a height of 150cm and hit his head while playing in the playground. There was no loss of consciousness and he is currently haemodynamically stable. GCS 15/15. On examination, he is oriented with a swelling and tenderness on his left cheek. Which of the following is the most SINGLE most appropriate initial investigation?</p> <p>A. CT brain B. MRI brain C. EEG D. Facial x-ray E. None of the above</p>
69.	<p>A 5 year old boy presents with drooling of saliva and severe stridor. He has a temperature of 39.0°C and is sick looking. He has difficulty speaking and has muffled voice. A lateral radiograph demonstrates a "thumb sign". What is the SINGLE most likely diagnosis?</p> <p>A. Croup B. Recurrent aspiration C. Diphtheria D. Acute epiglottitis E. Inhaled foreign body</p>
70.	<p>A 6 week old child is brought to A&E with persistent non-bilious vomiting. The child feels hungry and wants to feed despite constant vomiting. Biochemistry shows K⁺ of 3.1 mmol/l. What is the SINGLE most likely diagnosis?</p> <p>A. Pyloric stenosis B. Duodenal atresia C. Malrotation D. Achalasia cardia E. Tracheo-esophageal fistula</p>



71.	<p>An 8 year old boy is brought by his mother to the emergency department with bruises on his lower back and a left shoulder dislocation. The child currently lives with his stepfather. The young boy is quiet and makes no eye contact while in conversation. What is the SINGLE most likely diagnosis?</p> <p>A. Non accidental injury B. Malnutrition C. Thrombocytopenia D. Osteogenesis imperfecta E. Haemophilia</p>
72.	<p>An 8 year old boy presents to clinic with behavioral problems. He is inattentive in class. During the interview, he is unable to sit still; he is constantly blinking his eyes, making grunting noises with his throat, and rubbing his fingers. What is the SINGLE most likely diagnosis?</p> <p>A. Asperger syndrome B. Cotard's syndrome C. Rett's syndrome D. Ekbom's syndrome E. Tourette's syndrome</p>
73.	<p>A 10 month old male infant presents with a 6 hour history of crying and passage of loose, bloody stool. On examination, the infant is irritable, with intermittent drawing up of his knees to his chest, and a temperature of 38.8°C. Rectal examination reveals gross, currant jelly-coloured blood on finger. What is the SINGLE most likely diagnosis?</p> <p>A. Constipation B. Gastroenteritis C. Intussusception D. Meckel's diverticulum E. Volvulus</p>
74.	<p>A 2 year old boy was separated from his mother in a shopping mall. He got very upset and then fell down and became unconscious. He looked blue. He became conscious after 2 minutes and was back to his active self after an hour. His mother is extremely concerned. What is the SINGLE most appropriate next step?</p> <p>A. CT head B. Electroencephalogram (EEG) C. Full blood count (FBC) D. Reassure E. Pulmonary function test</p>
75.	<p>A 6 year old boy is brought to clinic by his worried mother complaining that he is still unable to keep dry at night. He wets his bed in the middle of the night at least three times a week but he is without daytime symptoms. There was no period where he managed to stay dry during the night. The mother wants to know if anything can be done to resolve this issue. His medical history is insignificant and</p>



	<p>there is no history of recurrent urinary tract infections. What is the SINGLE most appropriate management?</p> <p>A. Desmopressin B. Reassurance C. Behavioural therapy D. Enuresis alarm E. Referral to surgery</p>
76.	<p>A 13 year old girl presents to the Emergency Department with weight loss, bloody diarrhea, and fever intermittently over the last 6 months. The intermittent episodes has caused occasional restriction of activity. Currently she is having moderate abdominal pain. Labs reveal elevated ESR and positive p-ANCA. What is the SINGLE most likely management for this patient?</p> <p>A. Topical and oral mesalazine B. Prednisolone and mesalazine oral C. Prednisolone IV D. Cyclosporine IV E. Infliximab IV</p>
77.	<p>A 5 year old boy is brought to clinic by his mother. The young boy has a distinct nasal speech and snores heavily at night. He is hyperactive during the day but has poor concentration. He is noted to be constantly breathing through his mouth. What is the SINGLE most appropriate action?</p> <p>A. Arrange hearing test B. Assess development milestones C. Refer to ENT surgeon D. Refer to speech therapist E. Arrange a magnetic resonance imaging scan</p>
78.	<p>A 2 year old child was brought by his mother with swelling on the right side of his neck extending from the angle of the mouth to the middle one third of the sternocleidomastoid muscle. The swelling is on the anterolateral side of the sternocleidomastoid muscle. On examination, the mass is partially compressible. when subjected to light test is brilliantly translucent. What is the SINGLE most likely diagnosis?</p> <p>A. Lymphangioma B. Branchial cyst C. Thyroglossal cyst D. Ranula E. Grave's disease</p>
79.	<p>A 3 month old infant presents with recurrent infections and feeding difficulties. His face looks dysmorphic and has a cleft palate. A chest X-ray shows absent thymic shadow. What is the SINGLE most likely diagnosis?</p> <p>A. Down's syndrome</p>



	<p>B. Fragile X syndrome C. DiGeorge's syndrome D. Marfan's syndrome E. Edwards' syndrome</p>
80.	<p>A 4 month old child is brought to Accident & Emergency by her parents. She is found to weigh 4.1kg. She presents with multiple bruises on her left and right lower leg. Her left ankle is swollen and she refuses to move it. She appears irritable and she also has a runny nose. What is the SINGLE most likely diagnosis?</p> <p>A. Haemophilia B. Thrombocytopenia C. Non accidental injury D. Malnutrition E. Osteogenesis imperfecta</p>
81.	<p>A 9 year old girl, known case of asthma, presents to the Emergency Department with a 1 day history of shortness of breath that is increasing in severity. She had a previous upper respiratory tract infection 1 week prior which had resolved. Chest x-ray reveals bilateral hyperinflation. On arrival, she was given oxygen, nebulized beta-2 agonist, and oral prednisolone. She is now drowsy, respiratory rate is 30 and her SpO2 is 90%. Which of the following is the SINGLE most appropriate investigation?</p> <p>A. Arterial blood gas B. Pulse oximetry C. Spirometry D. CT chest E. Peak flow meter</p>
82.	<p>An 8 week baby boy is noted to be jaundiced. He has feeding difficulty, with vomiting and failure to gain weight. His stools are yellow and his urine is pale straw coloured. What is the SINGLE most likely diagnosis?</p> <p>A. Galactosaemia B. Biliary atresia C. Glucose-6-phosphate dehydrogenase (G6PD) deficiency D. Breast milk jaundice E. Congenital viral infection</p>
83.	<p>A 7 day baby whose birth weight was initially 3.5 kg, has a weight of 3.3 kg currently. What is the SINGLE most appropriate next action?</p> <p>A. Inform seniors and check the child protection register B. Refer for a nutritional assessment C. Request a skeletal survey D. Reassure mother and continue regular child care E. Inform the police</p>



84.	<p>A 7 year old girl is brought by her mother with bright red staining of her underpants. She gives a history that her daughter recently started taking horse riding lessons. What is the SINGLE next most appropriate action?</p> <p>A. Examination of genitalia in clinic B. Examination of genitalia under general anaesthesia C. Reassure and discharge D. Inform child protection services E. Colposcopy</p>
85.	<p>An 8 year old child has recurrent throat infections. He feels tired and lethargic all the time. Petechiae is noticed on his lower limbs. On examination, splenomegaly and gum hypertrophy was noted. Blood results show:</p> <p>Hb 6.8g/dl WCC $7 \times 10^9/L$ Platelets $75 \times 10^9/L$.</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Acute lymphoblastic leukaemia (ALL) B. Acute myeloid leukaemia (AML) C. Chronic myeloid leukaemia (CML) D. Chronic lymphocytic leukaemia (CLL) E. Hodgkin's lymphoma</p>
86.	<p>A 9 year old patient attends the outpatient department with complains of fever, malaise, weight loss, anorexia and productive cough. Examination reveals a temperature of $39.1^{\circ}C$, and a pulse of 120 beats/minute. His mother says that he has a history of recurrent chest infections since young. What is the SINGLE most likely causative organism?</p> <p>A. Pneumococcal pneumonia B. Staphylococcus aureus C. Mycobacterium tuberculosis D. Pseudomonas aeruginosa E. Pneumocystis pneumonia</p>
87.	<p>A 5 year old girl is being investigated for renal failure. She has a history of urinary tract infections in the pass. A congenital abnormality of the insertion of ureters into the urinary bladder was seen on scan. What is the single most likely cause for renal failure in this patient?</p> <p>A. Systemic Lupus Erythematosus B. Polycystic kidney disease C. Wilms' tumour D. Acute tubular necrosis E. Reflux nephropathy</p>



88.	<p>A 3 year old boy who has had frequent urinary tract infections has recently been diagnosed with vesicoureteral reflux. Which of the statements are correct?</p> <p>A. Antibiotic prophylaxis is first line B. Most children with vesicoureteral reflux will require surgery C. Most children with vesicoureteral reflux will have kidney scarring by age 5 D. Antibiotic use has not been shown to reduce renal scarring E. Surgical correction should only be considered in patients with low-grade reflux</p>
89.	<p>A 4 year old child presents to A&E with fever and stridor. He is unable to swallow his saliva. He has a respiratory rate of 45 breaths/minute. What is the SINGLE most appropriate next step in management?</p> <p>A. Examine his throat B. Secure his airways C. Keep him in a supine position D. Administer intravenous penicillin E. Administer intramuscular epinephrine</p>
90.	<p>A 2 year old child is brought to the hospital by his mother with a barking cough. A few days ago he had a runny nose, cough and a sore throat. His chest sounds are normal and there are no signs of intercostal recession. He looks drowsy and lethargic. He has a temperature of 38.7°C, respiratory rate of 34 breaths/minute, pulse rate of 150 beats/minute and his oxygen saturation on air is 96%. What is the SINGLE most appropriate management?</p> <p>A. Oral dexamethasone B. Oxygen C. Nebulised salbutamol D. Antibiotics E. Nebulised adrenaline</p>
91.	<p>A 13 month old female baby presents to the emergency department with difficulty in breathing. On examination, she has intercostal recessions and a bilateral widespread wheeze. Her temperature is 37.9°C and respiratory rate is 35 breaths/minute. What is the SINGLE most likely diagnosis?</p> <p>A. Bacterial upper respiratory tract infection B. Pneumonia C. Bronchiolitis D. Respiratory distress syndrome E. Alpha 1 antitrypsin deficiency</p>



PHARMACOLOGY

SAMPLE



1.	<p>Which of the following drugs can cause bronchoconstriction?</p> <p>A. Atenolol B. Salbutamol C. Salmeterol D. Ipratropium bromide E. Theophylline</p>
2.	<p>A 68 year old male patient is on Ramipril 10mg daily and Bendroflumethiazide 2.5mg daily for hypertension. He has come for his routine checkup with a blood pressure of 135/85 mmHg. His blood tests shows:</p> <p>Serum potassium level 5.9 mmol/L Serum sodium 126 mmol/L Serum creatinine 79 μmol/L</p> <p>What is the SINGLE most likely side effect of thiazide diuretics which contributed to his blood results?</p> <p>A. Hypocalcaemia B. Hyponatraemia C. Hypouricemia D. Hyperkalaemia E. Hypernatraemia</p>
3.	<p>A 30 year old lady comes to the emergency department with palpitations and chest pain. ECG shows sinus tachycardia. Her pulse rate is 110 beats/minute. She has a history of asthma and her GP recently changed her medications. What is the SINGLE most appropriate management?</p> <p>A. Atenolol B. Digoxin C. Review medications D. Lidocaine E. Labetalol</p>
4.	<p>A 32 year old man on psychiatric medications complains of the inability to ejaculate. What is the SINGLE most likely medication he is taking?</p> <p>A. Lithium B. Haloperidol C. Chlorpromazine D. Fluoxetine E. Clozapine</p>
5.	<p>A 5 year old boy was rushed to the emergency department unconscious after he had taken methadone belonging to his sister. He was given naloxone and he regained consciousness. After a</p>



	<p>while he started getting drowsy again. What is the SINGLE most likely reason for his drop in level of consciousness?</p> <p>A. Naloxone is absorbed faster than methadone B. Methadone is absorbed faster than naloxone C. Methadone increases elimination of naloxone D. Methadone has already caused tissue damage E. Naloxone has a shorter half life compared to methadone</p>
6.	<p>A 45 year old diabetic man had recently started taking anti-hypertension therapy. 6 months later his fasting blood glucose is 14 mmol/l. What is the SINGLE most likely medication that would have caused this?</p> <p>A. Amlodipine B. Bendroflumethiazide C. Doxazosin D. Losartan E. Ramipril</p>
7.	<p>A 65 year old man with hypertension develops gingival hyperplasia. What is the SINGLE most likely medication causing the gingival hyperplasia?</p> <p>A. Ramipril B. Metoprolol C. Spironolactone D. Nifedipine E. Indapamide</p>
8.	<p>A 60 year old man developed ankle swelling shortly after starting antihypertensive medication. What is the SINGLE most likely antihypertensive medication which could account for his symptoms?</p> <p>A. Bendroflumethiazide B. Bisoprolol C. Diltiazem D. Furosemide E. Captopril</p>
9.	<p>A 35 year old man with a history of alcohol abuse has oedema and ascites demonstrated by shifting dullness. Spider naevi is noted on his trunk. Paracentesis shows clear fluid. He has a temperature of 37.2°C, a pulse of 85 beats/minute, a blood pressure of 119/85 mmHg and a respiratory rate of 20 breaths/minute. What is the SINGLE most appropriate medication to start?</p> <p>A. Corticosteroid B. Azathioprine C. Spironolactone D. Cholestyramine E. Penicillamine</p>



10.	<p>56 year old man whose pain was relieved by oral Morphine, now presents with progressively worsening pain. Increasing the dose of oral morphine helps to relieve his pain. However, he now complains that the increased morphine makes him drowsy and he is unable to carry out his daily activities. What is the SINGLE most appropriate next step?</p> <p>A. Replace oral morphine with oral oxycodone B. Replace oral morphine with oral tramadol C. Patient-controlled analgesia (PCA) D. Intravenous fentanyl E. Intravenous diamorphine</p>
11.	<p>A 34 year old man suffers from depression. He was recently started on sertraline by his GP. When can a therapeutic response of sertraline be seen?</p> <p>A. 1-2 hours B. 1-2 days C. 1-2 weeks D. 1-2 months E. 1-2 years</p>
12.	<p>A patient has recently been diagnosed with Bipolar Disorder and is to be put on Lithium therapy. Her renal function and liver function tests are normal. What is the SINGLE other test you need to do before commencing her on Lithium?</p> <p>A. Renal biopsy B. Autoimmune screen C. Fluid restriction test D. Urine for glucose E. Thyroid function tests</p>
13.	<p>A 72 year old woman who is taking loop diuretics is suffering from palpitations and muscle weakness. What is the SINGLE most likely electrolyte imbalance to be found?</p> <p>A. Sodium 130 mmol/L, potassium 2.5 mmol/L B. Sodium 130 mmol/L, potassium 5.5 mmol/L C. Sodium 140 mmol/L, potassium 4.5 mmol/L D. Sodium 150 mmol/L, potassium 3.5 mmol/L E. Sodium 150 mmol/L, potassium 5.6 mmol/L</p>
14.	<p>A 55 year old man on hypertension medications develops hyperkalaemia. What is the SINGLE most likely anti-hypertension to cause it?</p> <p>A. Nifedipine B. Indapamide C. Bendroflumethiazide D. Enalapril</p>



	E. Amlodipine
15.	<p>A 78 year old man who was previously on 120 mg slow release oral morphine and paracetamol 1g QDS had his dose increased to 200 mg slow release oral morphine. He is still in significant pain but complains of drowsiness and constipation. What is the SINGLE most appropriate step in the management?</p> <p>A. Increase slow release morphine dose B. Fentanyl patch C. Replace morphine with oral hydromorphone D. Replace morphine with oxycodone E. Subcutaneous morphine</p>
16.	<p>A 24 year old woman was prescribed amoxicillin for an episode of otitis media. She has been using the combined oral contraceptive pill as a form of contraception for the past two years. What is the SINGLE most appropriate advice to give her with regards to antibiotic use and taking the COCP?</p> <p>A. Barrier contraception should be used for 6 weeks B. Barrier contraception should be used until the course of antibiotics is complete C. No additional precaution is needed D. Barrier contraception plus spermicide should be used E. Stop COCP and use alternate contraceptive method</p>
17.	<p>A 60 year old man has had spontaneous painful swelling of his right thumb for 3 days. About five days ago, he had an inguinal hernia repaired as a day case. He takes bendroflumethiazide 2.5mg daily. He is apyrexial. What is the SINGLE most appropriate diagnostic investigation?</p> <p>A. Blood culture B. C-reactive protein (CRP) C. D-dimer D. X-ray hand E. Serum uric acid</p>
18.	<p>A 72 year old man has been on warfarin for the last 2 years because of a previous transient ischaemic attack and stroke. He is not on any other medication. Which SINGLE symptom would be the most alarming?</p> <p>A. Severe headache B. Sore throat C. Constipation D. Calf tenderness E. Diarrhoea</p>
19.	<p>A 74 year old man has been taking Warfarin 7mg daily for the treatment of left arm DVT with an INR target of 2-3 for the past two years. He also takes Furosemide 40 mg daily, Diprobace cream and Co-dydramol when required for pain relief. He is usually compliant with his medications. What is the SINGLE most important adverse effect the patient should be careful with?</p>



	<p>A. Peripheral Neuropathy B. Phototoxicity C. Headache D. Constipation E. Persistent cough</p>
20.	<p>A 63 year old man presented with sudden onset of severe dyspnoea, orthopnea, raised jugular venous pressure and bilateral basal crackles three days after an episode of myocardial infarction. A diagnosis of acute congestive cardiac failure was made and intravenous furosemide was started. What is the SINGLE most likely electrolyte abnormality to be expected?</p> <p>A. High sodium, Low potassium B. Low sodium, High potassium C. Low sodium, Low potassium D. High sodium, High potassium E. Low sodium, Normal potassium</p>
21.	<p>A 37 year old female patient has been taking Doxycycline 100mg daily for acne for the past two weeks. She complains of feeling nauseous and having frequent diarrhoea since starting the medication. She has no known allergies and occasionally buys paracetamol over the counter. What is the SINGLE most appropriate advice to be given to this patient?</p> <p>A. Stop Doxycycline B. Take it with meals C. Take it before meals D. Take antacids E. Take antiemetics</p>
22.	<p>A 7 year old child presented with a red, circular shaped rash on his skin. He was prescribed Fucidin cream for 7 days to be applied but the rashes did not improve. He is complaining of itch around the area where the rashes appear. What is the SINGLE next best choice of medication to be prescribed?</p> <p>A. Betamethasone cream B. Clotrimazole cream C. Hydrocortisone cream D. Urea 10% cream E. Coal tar cream</p>
23.	<p>A 25 year old man has been suffering from breathlessness and wheeze for the last 3 months. He has been prescribed Salbutamol inhaler, to take 2 puffs as required. In the last 2 weeks his symptoms have worsened and he has been using his Salbutamol inhaler five times a week, more frequently during the day. He also complains of difficulty sleeping at night due to excessive coughing and breathlessness. What is the SINGLE best medication to be added onto his regime?</p> <p>A. Theophylline B. Salmeterol inhaler</p>



	<p>C. Beclomethasone inhaler D. Montelukast tablet E. Salbutamol tablet</p>
24.	<p>A 45 year old man has recently had an anterior resection of the rectum. Postoperatively, he was on oxycodone which controlled the pain. He started vomiting several times on the second day and a mild intestinal obstruction is suspected. What is the SINGLE most appropriate management for his pain?</p> <p>A. Switch oral oxycodone to fentanyl patch B. Switch oral oxycodone to intramuscular morphine C. Switch oral oxycodone to intravenous morphine D. Switch oral oxycodone to intramuscular codeine phosphate E. Switch oral oxycodone to oral codeine</p>

SAMPLE



PSYCHIATRY



1.	<p>A 38 year old man has disturbing thoughts about his house being infected by germs. He is anxious about safety and checks the locks of his doors repeatedly before going to bed. He has been washing his hands every time he touches the lock. This can be 5 to 10 times an hour. What is the SINGLE most appropriate management?</p> <p>A. Antidepressant B. Antipsychotic C. Anxiolytic D. Cognitive behavioural therapy E. Psychodynamic psychotherapy</p>
2.	<p>A 57 year old man had a myocardial infarction 6 months ago. He has been having low moods since then and a diagnosis of moderate depression has been established. Which is the SINGLE most appropriate medication to start him on?</p> <p>A. Selective serotonin reuptake inhibitors B. Tricyclic antidepressants C. Monoamine oxidase inhibitors D. Benzodiazepam E. Mood stabilizer</p>
3.	<p>A 27 year old woman is afraid to go out of her house into public places. Everytime she travels using public transport she becomes breathless and has palpitations. What is the SINGLE most likely diagnosis?</p> <p>A. Social phobia B. Claustrophobia C. Arachnophobia D. Acrophobia E. Agoraphobia</p>
4.	<p>A 37 year old woman believes that her neighbours have been using her shower while she is away at work. She is convinced that they dry the bathroom and escape just before she goes into the bathroom. Her husband comes to share the same belief and informs the police. What is the SINGLE most appropriate term for these symptoms?</p> <p>A. Capgras syndrome B. Cotard syndrome C. Persecutory delusions D. Folie à deux E. Munchausen's syndrome</p>
5.	<p>A 24 year old depressed man has neglected his personal hygiene and physical health. He denies the existence of his bowels and believes that his bowels are blocked. He also believes that his limbs are missing and that no one cares about it. What SINGLE kind of delusion is he suffering from?</p> <p>A. Nihilistic delusions</p>



	<p>B. Delusion of guilt C. Persecutory delusion D. Frégoli delusion E. Clang association</p>
6.	<p>A 26 year old woman has a history of bipolar disorder for 10 years and is taking lithium for it. She has been symptom free for the past 4 years. She is now planning her pregnancy and wants to know whether she should continue to take lithium. What is the SINGLE most appropriate advice?</p> <p>A. Continue lithium at the same dose and stop when pregnancy is confirmed B. Continue lithium during pregnancy and stop when breast feeding C. Reduce lithium dosage but continue throughout pregnancy D. Reduce lithium gradually and stop before pregnancy is confirmed E. Switch to sodium valproate</p>
7.	<p>A 22 year old woman was brought to the emergency department by her boyfriend with her fist bleeding after punching a mirror. She is distressed because he wants to end the relationship. Scars of old cuts on her forearms was noticed during a physical examination. She denies trying to end her life. What is the SINGLE most likely diagnosis?</p> <p>A. Acute psychosis B. Borderline personality disorder C. Severe depression D. Schizoid personality E. Psychotic depression</p>
8.	<p>A 22 year old man was found overdosed on heroin. He has decreased respiratory rate and has lost consciousness. What is the SINGLE most appropriate management?</p> <p>A. Benzodiazepines B. Diazepoxide C. Naloxone D. Methadone E. Disulfiram</p>
9.	<p>A 45 year old woman presents with complaints of abdominal pain and blood in the stool. She brings the stool sample from home but has never been able to produce a sample at the hospital. A urinalysis was done which was negative. Her blood test are normal. This is the third time she is presenting to the hospital in the last month. On examination, multiple scars on the abdomen consistent with laparoscopies are seen. She insists on getting further investigations although no abnormalities are found. What is the SINGLE most likely diagnosis?</p> <p>A. Somatization disorder B. Hypochondriasis C. Munchausen's syndrome D. Conversion disorder E. Malingering</p>



10.	<p>A 29 year old women diagnosed with schizophrenia is complaining that the children playing outside her garden can hear her thoughts. She says they know exactly what she is thinking at all times of the day. What is the SINGLE most likely phenomenon?</p> <p>A. Thought block B. Thought insertion C. Thought broadcasting D. Thought withdrawal E. Thought block</p>
11.	<p>A 38 year old woman with episodes of mania followed by depression was started on medication. Improvement was seen and she no longer complains of these episodes. What is the SINGLE most likely medication that she was started on?</p> <p>A. Fluoxetine B. Lithium C. Lorazepam D. Haloperidol E. Amphetamine</p>
12.	<p>A couple attends a marriage counselling session because of marital problems. The wife states that her husband is having affairs although she has no proof of this. The husband states that she is “insane” because she is having him followed by a private detective and she is overly preoccupied about him being unfaithful. She goes through his personal belongings almost every day to look for signs of infidelity. Her actions are putting considerable strain on their marriage. What is the SINGLE most likely syndrome she is suffering from?</p> <p>A. Frégoli delusion B. Cotard syndrome C. Capgras syndrome D. Ekbom syndrome E. Othello syndrome</p>
13.	<p>A 21 year old girl looking unkempt, came to the hospital asking for painkillers for her abdominal pain. She is agitated, and looks malnourished. She is also sweating, shivering and complains of joint pain. What is the SINGLE most likely substance misuse?</p> <p>A. Alcohol B. Heroin C. Cocaine D. LSD E. Ecstasy</p>
14.	<p>A 55 year old man has a firm belief that the headlines in the newspapers are written especially for him. He believes that the authors of the newspaper articles who he has never met are sending secret</p>



	<p>and significant messages that only he can understand. What is the SINGLE most likely type of delusion that this man is suffering from?</p> <p>A. Persecutory delusions B. Grandiose delusions C. Delusion of control D. Delusion of reference E. Nihilistic delusions</p>
15.	<p>A 33 year old man with a family history of panic disorder has palpitations, tremors, sweating and muscles tightness on 3 occasions in the last 6 weeks. His pulse rate is 85 bpm, BP is 120/80 mmHg. What is the SINGLE most appropriate long-term treatment for him?</p> <p>A. Diazepam B. Olanzapine C. Haloperidol D. Fluoxetine E. Alprazolam</p>
16.	<p>A 33 year old woman has been feeling down for the past one year. She feels fatigue and is eating more than usual. Several times a week she would wake up during the night and would not be able to go back to sleep. Occasionally, she hears voices of her late husband who died two years ago. What is the SINGLE most likely diagnosis?</p> <p>A. Obsessive compulsive disorder B. Psychotic depression C. Grieving D. Severe depression E. Hypomania</p>
17.	<p>A 64 year old man has recently suffered from an a myocardial infarction 5 months ago. He has been having trouble sleeping and seems depressed. His regular medications include aspirin, atorvastatin and ramipril. What is the SINGLE most appropriate medication to start him on?</p> <p>A. Lofepramine B. Dosulepin C. Citalopram D. Amitriptyline E. Phenelzine</p>
18.	<p>A 28 year old woman comes in with her limbs paralysed after witnessing a car accident. She cannot recall what just happened. What is the SINGLE most likely diagnosis?</p> <p>A. Somatization disorder B. Hypochondriasis C. Munchausen's syndrome D. Conversion disorder</p>



	E. Malingering
19.	<p>A 30 year old woman has been feeling low and having difficulty in concentrating since her mother passed away 2 months ago. She feels lethargic and has been crying more often lately. What is the SINGLE most likely diagnosis?</p> <p>A. Adjustment disorder B. Post traumatic stress disorder C. Panic disorder D. Generalized anxiety disorder E. Major depression</p>
20.	<p>A 32 year old woman complains of abdominal pain, palpitations, unsteadiness, and numbness of the lower limbs. Every investigation that is performed by the doctors come back normal. What is the SINGLE most likely diagnosis?</p> <p>A. Somatization disorder B. Hypochondriasis C. Munchausen's syndrome D. Conversion disorder E. Malingering</p>
21.	<p>A 24 year old woman is afraid to leave her house as whenever she goes out into the open, she tends to have shortness of breath, palpitations and sweating. She only goes out when her husband is with her. What is the SINGLE most likely diagnosis?</p> <p>A. Social phobia B. Claustrophobia C. Depression D. Panic disorder E. Agoraphobia</p>
22.	<p>A 64 year old man has a firm belief that the person on the billboard outside his window is sending a messages that are meant specifically for him. What is the SINGLE most likely type of delusion that this man is suffering from?</p> <p>A. Persecutory delusions B. Grandiose delusions C. Delusion of control D. Delusion of reference E. Nihilistic delusions</p>
23.	<p>A 6 year old child is brought to the clinic by his mother. She says that his teacher complains that he is easily distracted and interrupts others when it is their turn to answer questions. His mother says that he is not able to do a particular task for a long time and cannot play quietly. He is careless and often breaks things. What is the SINGLE most likely diagnosis?</p>



	<p>A. Autism spectrum disorder B. Dyslexia C. Attention deficit hyperactivity disorder (ADHD) D. Antisocial personality disorder E. Oppositional defiant</p>
24.	<p>A 24 year man finds it difficult to come out of his house without checking if he has locked the door several times. When exits his house, he has to check it at least 3 times by pushing the door handle to confirm it is locked. He now wants help as he has been doing this for a couple of years. What is the SINGLE most appropriate management?</p> <p>A. Exposure and response prevention (ERP) B. Selective serotonin reuptake inhibitors (SSRIs) C. Electroconvulsive therapy (ECT) D. Antipsychotics E. Desensitization</p>
25.	<p>A 29 year old man has been found in the park, drunk and brought to the emergency department by ambulance. He recently lost his job and had a divorce 3 months ago. He has intense feelings of feeling worthless and being a failure. He also hears voices telling him he is worthless. What is the SINGLE most likely diagnosis?</p> <p>A. Schizoid personality disorder B. Borderline personality C. Schizophrenia D. Psychotic depression E. Hypomania</p>
26.	<p>A 28 year old female who delivered 6 weeks ago feels sad and has no interest to feeding the baby. She has been eating poorly and having difficulty sleeping. She feels weak throughout the day and has stopped taking the baby out of the house. She also says that the baby has evil eyes. What is the SINGLE most likely diagnosis?</p> <p>A. Postpartum blues B. Postpartum depression C. Postpartum psychosis D. Schizophrenia E. Psychotic depression</p>
27.	<p>A 25 year old woman presents to the GP with low mood. She has an increased appetite and has gone up 2 dress sizes. She also complains that she feels very tired and often only gets out of bed in the afternoon despite sleeping early. What is the SINGLE most likely diagnosis?</p> <p>A. Pseudo depression B. Moderate depression C. Severe depression D. Dysthymia</p>



	E. Atypical depression
28.	<p>A 23 year old woman has had several sudden onset episodes of palpitations, sweating, nausea and overwhelming fear. On one occasion she was woken from sleep and had the fear that she was going insane. She has no previous psychiatric medical history and is not on any medication. What is the SINGLE most likely diagnosis?</p> <p>A. Pheochromocytoma B. Panic disorder C. Generalized anxiety disorder D. Hypnophobia E. Acute stress disorder</p>
29.	<p>A 35 year old chronic alcoholic has been trying to stop his alcohol drinking habit. He has been going for support meetings. He wants to know if there is a medication that can help reduce his alcohol cravings. What is the SINGLE most appropriate medication?</p> <p>A. Disulfiram B. Acamprosate C. Vitamin B12 D. Pabrinex E. Chlordiazepoxide</p>
30.	<p>A 28 year old woman has episodes of peri-oral tingling and carpopedal spasms every time she has to give a public talk. These symptoms also happens to her before interviews, exams and after arguments. She describes these episodes as short lasting only a couple of minutes but with intense fear. What is the SINGLE most appropriate management?</p> <p>A. Diazepam B. Rebreath into a paper bag C. Alprazolam D. Buspirone E. Propranolol</p>
31.	<p>A 30 year old man who served in the army 6 months ago presents with lack of interest in enjoyable activities and feeling low. He often wakes up in the middle of the night because of nightmares of gun fire. He feels irritable and has difficulty concentrating. He tries not to watch the news as it reminds him of war. What is the SINGLE most appropriate initial therapy?</p> <p>A. Citalopram B. Lofepamine C. Cognitive behavioural therapy (CBT) D. Chlordiazepoxide E. Desensitization</p>
32.	<p>A 24 year old man feels down and lethargic. In the last couple of months, he has stopped enjoying his hobbies which include playing the violin. He was admitted to the psychiatry ward last year following</p>



	<p>an episode of overspending, reckless behaviour and promiscuity. What is the SINGLE most likely diagnosis?</p> <p>A. Psychosis B. Cyclothymia C. Bipolar affective disorder D. Seasonal affective disorder E. Depression</p>
33.	<p>A 65 year old woman thinks she has died 3 months ago and is very distressed that nobody has buried her up till now. She hears people's voices which tell her that is evil and needs to be punished. She barely has any eye contact when speaking to the health care professionals. What is the SINGLE most likely explanation for her symptoms?</p> <p>A. Schizophrenia B. Mania C. Psychotic depression D. Hysteria E. Toxic confusional state</p>
34.	<p>A 29 year old teacher was run down by a drunk driver a year ago. Since then, she has been afraid to cross the road. She suffers from nightmares about that incident and gets a startled response every time she hears loud sounds. What is the SINGLE most appropriate initial management?</p> <p>A. Cognitive behavioural therapy (CBT) B. Diazepam C. Citalopram D. Dosulepin E. Sertraline</p>
35.	<p>A 35 year old is agitated and euphoric. He claims to be helping the prime minister with economic policies and describes himself to be a very powerful man. He believes that he has made important discoveries regarding international policies that have great impact towards the United Kingdom. On further investigation, these statements are untrue. What is the SINGLE most likely diagnosis?</p> <p>A. Bipolar disorder B. Schizophrenia C. Hypomania D. Erotomania E. Delusion of grandeur</p>
36.	<p>A 28 year old business man returned from a trip from Kenya 2 years ago. He attends a sexual clinic worried that he has contracted HIV. Antibody screening test for HIV has come back negative. There were 2 similar HIV test performed 6 months and 9 months ago which have both come back as negative. This is his 5th visit to the clinic claiming that he is HIV positive. What is the SINGLE most likely diagnosis?</p>



	<p>A. Somatization disorder B. Hypochondriasis C. Munchausen's syndrome D. Conversion disorder E. Malingering</p>
37.	<p>A 38 year old man keeps having intrusive thoughts about having dirt under the bed. He cannot keep himself from thinking about these thoughts. If he tries to resist, he starts having palpitations. What is the SINGLE most likely diagnosis?</p> <p>A. Adjustment disorders B. Obsessive–compulsive disorder (OCD) C. Schizophrenia D. Panic disorder E. Acute stress reaction</p>
38.	<p>A 22 year old woman thinks she is overweight. She has a body mass index of 21.8 kg/m². She has often has constipation and abdominal pain. She eats uncontrollably and feels guilty resulting in self-inducing vomiting. Sometimes to compensate for her big meal, she would exercise intensively. What is the SINGLE most likely diagnosis?</p> <p>A. Anorexia nervosa B. Pituitary tumour C. Hypothyroidism D. Bulimia nervosa E. Prader willi syndrome</p>
39.	<p>A 20 year old man complains his movements are being watched. He feels as though his actions are being controlled by the radio. At times he hears voices describing his actions. What is the SINGLE most likely diagnosis?</p> <p>A. Mania B. Schizoid personality disorder C. Paranoid personality disorder D. Schizophrenia E. Korsakoff psychosis</p>
40.	<p>A 48 year old man attends his GP. He was started on fluoxetine 8 weeks ago for depression and is now requesting to stop his medication as he feels well and does not think he is depressed any longer. What is the SINGLE most appropriate advice to give to him in regards to his treatment?</p> <p>A. Stop fluoxetine right away B. Continued fluoxetine for at least another 6 months C. Fluoxetine dose should be gradually reduced over a 4 week period D. Fluoxetine dose should be gradually reduced over a 1 week period E. Change to a different SSRI</p>



41.	<p>A 23 year old man comes to the emergency department with a history of drug misuse. He recognizes that he has a problem and is willing to see a psychiatrist. What is the SINGLE most accurate term that describes this situation?</p> <p>A. Judgement B. Thought insertion C. Thought block D. Mood E. Insight</p>
42.	<p>A 30 year old woman complains of feeling restless, muscle tension and sleep disturbance on majority of the days over the last 9 months. She worries excessively about a number of everyday events and activities and is unable to control these feelings which are impairing her ability to hold down her job. What is the SINGLE most likely diagnosis?</p> <p>A. Panic disorder B. Generalized anxiety disorder (GAD) C. Pheochromocytoma D. Acute stress reaction E. Social phobia</p>
43.	<p>A 64 year old man believes a female newscaster on the television is communicating directly to him when she turns a page and when she looks at the camera. What is the SINGLE most likely type of delusion that this man is suffering from?</p> <p>A. Persecutory delusions B. Grandiose delusions C. Delusion of control D. Delusion of reference E. Nihilistic delusions</p>
44.	<p>A 26 year old woman is afraid to visit the shopping centre. Crowds and public places causes her to panic. She feels more relaxed when she goes out to public places with her husband than when alone. What is the SINGLE most likely diagnosis?</p> <p>A. Social phobia B. Claustrophobia C. Arachnophobia D. Acrophobia E. Agoraphobia</p>
45.	<p>A 32 year old man thinks nurses are plotting to harm him and are stealing his ideas straight out from his mind. Sometimes he feels the nurses are able to control his body. What is the SINGLE most likely diagnosis?</p> <p>A. Schizoid personality disorder B. Borderline personality</p>



	<p>C. Schizophrenia D. Psychotic depression E. Paranoid personality disorder</p>
46.	<p>A 34 year old woman 3 weeks after childbirth has thoughts of harming her little baby as she complains that he has evil eyes. She has been feeling low and has been suffering from lack of sleep. Prior to this she was well and has no psychiatric issues. What is the SINGLE most appropriate management for this patient?</p> <p>A. Cognitive behavioural therapy (CBT) B. Electroconvulsive Therapy (ECT) C. IV haloperidol D. Paroxetine E. Amitriptyline</p>
47.	<p>A 19 year old college student has a firm and unshakable belief that he is being followed by terrorists who are plotting against him. He says they follow him wherever he goes. What is the SINGLE most appropriate term for his condition?</p> <p>A. Persecutory delusions B. Grandiose delusions C. Delusion of control D. Delusion of reference E. Nihilistic delusions</p>
48.	<p>A 64 year old man has just suffered from a myocardial infarction. Before discharge, he seems to be in a sad mood and avoids eye contact. The nurses report that he has skipped his last two meals. What is the SINGLE best treatment for this man's condition?</p> <p>A. Sertraline B. Risperidone C. Lithium D. Amitriptyline E. Diazepam</p>
49.	<p>A 33 year old woman has been feeling low and having difficulty in concentrating since her husband passed away 6 weeks ago. She has been crying almost everyday, and feeling hopeless. She has been withdrawing from other people and does not want to go out for dinner with her mother. What is the SINGLE most likely diagnosis?</p> <p>A. Adjustment disorder B. Post traumatic stress disorder C. Panic disorder D. Generalized anxiety disorder E. Social phobia</p>
50.	<p>A 43 year old woman presents with low mood, and loss of libido. She feels tired all day and she attributes this to the fact that she wakes up 3 hours sooner than usual. She feels like she has been</p>



	<p>gaining weight. She also finds it difficult to concentrate for long periods of time. What is the SINGLE most likely diagnosis?</p> <p>A. Seasonal Affective Disorder B. Bipolar disorder C. Attention deficit hyperactivity disorder (ADHD) D. General anxiety disorder E. Depression</p>
51.	<p>A 33 year old woman has persistent fear when she has to speak publicly. She sweats and has palpitations and finds it very difficult to breathe. She is afraid of what people might think of her. She tries her best to avoid these situations. What is the SINGLE most likely diagnosis?</p> <p>A. Agoraphobia B. Acute stress disorder C. Social anxiety D. Obsessive compulsive disorder E. Generalized anxiety disorder</p>
52.	<p>A 29 year old women is overly paranoid that her partner is being unfaithful to her. She checks his phones, email accounts and bank statements several times a day for evidence of infidelity. She dislikes him going out as she fears that he would look at other women while he is out on his own. She does not allow any social media for fear that he may meet another women. What is the SINGLE most likely diagnosis?</p> <p>A. Frégoli delusion B. Cotard syndrome C. Capgras syndrome D. Ekbom syndrome E. Othello syndrome</p>
53.	<p>A 62 year old man who was admitted for surgery 3 days ago suddenly becomes confused. His attention span is reduced. He is restless and physically aggressive and picks at his bed sheets. What SINGLE aspect of the patient's history recovered in his notes is most likely to aid in making the diagnosis?</p> <p>A. Chronic alcohol consumption B. Previous head trauma C. Psychiatric history of generalized anxiety disorder D. Psychiatric history of obsessive compulsive disorder E. Mild cognitive impairment</p>
54.	<p>A 31 year old woman 15 days following childbirth is brought to the hospital by her husband. He complains that his wife has lost the ability to care for herself and is not eating well. She does not sleep well and has intrusive and unpleasant thoughts of harming the baby. What is the SINGLE best management for this patient?</p>



	<p>A. Fluoxetine B. Haloperidol C. Cognitive behavioural therapy (CBT) D. Reassurance E. Electroconvulsive Therapy (ECT)</p>
55.	<p>A 43 year old man attends the GP clinic complaining that his arm is dead and rotten and he wants it removed. On physical examination, the arm looks normal. What is the SINGLE most appropriate diagnosis?</p> <p>A. Somatization disorder B. Hypochondriasis C. Conversion disorder D. Nihilistic delusions E. Capgras syndrome</p>
56.	<p>A 74 year old man is depressed after his wife's death 6 months ago. He has been neglecting himself and is not eating well. He has lost 11 kg in the last 3 months. At times, he has thought about self harm but has never done it. His son found him in a very miserable state when he went to visit him last night. Unfortunately, the son is unable to care for his father due to work and other family related issues. What is the SINGLE most appropriate management?</p> <p>A. Review his mental status in 2 weeks B. Refer to a social worker C. Suggest the option of his son to moving in with his father D. Send patient to a care home E. Voluntary admission to the psychiatry ward</p>
57.	<p>A 33 year old man attends his appointment with the psychiatrist. He says that he is no longer alive. He wants his family to bury him. What is the SINGLE most appropriate diagnosis?</p> <p>A. Somatization disorder B. Hypochondriasis C. Conversion disorder D. Nihilistic delusions E. Capgras syndrome</p>
58.	<p>A 37 year old woman was admitted for a femur fracture repair after a road traffic accident. On the fourth post-op day she becomes confused and starts picking on her bed sheets. She complains of seeing spiders all over her bed. What is the SINGLE most likely diagnosis?</p> <p>A. Delirium tremens B. Wernicke's encephalopathy C. Korsakoff's psychosis D. Psychotic depression E. Electrolyte imbalance</p>



59.	<p>A 19 year old man has lack of interest and no social interactions. He has very little friends and does not talk much. He prefers solitary activities. One of his interest is in collecting toy cars. He has over 2,000 toy cars and often spends hours lining them up. What is the SINGLE most likely diagnosis?</p> <p>A. Borderline personality disorder B. Dissocial personality disorder C. Obsessive compulsive disorder D. Autism spectrum disorder E. Bipolar affective disorder</p>
60.	<p>A 21 year old woman has had several sudden onset episodes of palpitations, sweating, nausea and overwhelming fear. On one occasion she was woken from sleep and feared she was going insane. She has no previous psychiatric disorder. What is the SINGLE most likely diagnosis?</p> <p>A. Pheochromocytoma B. Panic disorder C. Generalized anxiety disorder D. Agoraphobia E. Acute stress disorder</p>
61.	<p>A 48 year old woman who is always socially withdrawn has stopped going out of the house. She is afraid to socialize because she fears that people will criticize her. What is the SINGLE most likely diagnosis?</p> <p>A. Agoraphobia B. Post traumatic stress disorder C. Social anxiety D. Obsessive compulsive disorder E. Generalized anxiety disorder</p>
62.	<p>A 26 year old political refugee has sought asylum in the UK. He complains of poor concentration. He keeps getting thoughts of his family whom he saw was killed in a political coup. He is unable to sleep well, feels hopeless and detached. What is the SINGLE most likely diagnosis?</p> <p>A. Acute stress disorder B. Post traumatic stress disorder C. Social phobia D. Obsessive compulsive disorder E. Generalized anxiety disorder</p>
63.	<p>A 20 year old woman with amenorrhoea and a body mass index is 14.8 kg/m² is still trying to lose weight. She exercises excessively and induces vomiting after her meals. What is the SINGLE most likely diagnosis?</p> <p>A. Anorexia nervosa B. Bulimia nervosa C. Obsessive compulsive disorder</p>



	D. Severe depression E. Body dysmorphic disorder
64.	<p>A 17 year old woman has been diagnosed with anorexia nervosa. She has mild depressive symptoms and has reduced her food intake in the last 8 months. She exercises daily and admits to inducing vomiting occasionally after a meal. Her body mass index is 16.8 kg/m². She has a blood pressure of 95/65 mmHg and a heart rate of 70 beats/minute. What is the SINGLE most appropriate management?</p> <p>A. Refer to eating disorder service B. Refer to dietician C. Admit to medical ward D. Admit to psychiatry ward E. Start antidepressants</p>
65.	<p>A couple has just finished their detox regime and wants a drug with a pharmacological action to serve as a deterrent when they take alcohol. What is the SINGLE most appropriate medication to start?</p> <p>A. Disulfiram B. Acamprosate C. Vitamin supplement D. Naloxone E. Chlordiazepoxide</p>
66.	<p>A 35 year old schizophrenic man hears voices narrating his actions like “he is going to the toilet” and “he is leaving the house”. What is the SINGLE most likely type of hallucinations involved?</p> <p>A. First-person auditory hallucinations B. Second-person auditory hallucinations C. Third-person auditory hallucinations D. Echo de la pensee E. Gedankenlautwerden</p>
67.	<p>A 22 year old man was rushed into the emergency department. He describes recurrent episodes of fearfulness, palpitations, with peri-oral tingling and cramping of the hands. His symptoms last 5 - 10 minutes. He is worried he may be having a heart attack. An ECG shows sinus tachycardia. He has a respiratory rate of 34 breaths/minute. What is the SINGLE most appropriate immediate intervention?</p> <p>A. High flow oxygen B. IV sedation C. Rebreath into a paper bag D. Alprazolam E. Refer to cardiac team urgently</p>
68.	<p>A 33 year old man with alternating mood swings and episodes mood elevation to depression underwent treatment and improvement was seen in his mood swings. What SINGLE medication is needed to be continued to prevent his alternating moods?</p>



	<p>A. Anxiolytics B. Mood stabilizers C. Antidepressants D. Antipsychotics E. Stimulants</p>
69.	<p>A 30 year old woman who suffered from depression a few years ago has recently spent a substantial amount of money buying new clothes. She goes out almost every night with her friends. She would not allow any of her friends to choose the restaurant for dinner as she believes she knows the best places to eat. She sleeps less than usual and fills her days with as many activities as she can. What is the SINGLE most likely diagnosis?</p> <p>A. Mania B. Depression C. Bipolar affective disorder D. Borderline personality disorder E. Hypomania</p>
70.	<p>A 21 year old man was brought by his friends unconscious from a party where he was said to have drank vodka. While he was being attended to by the doctor in the emergency department, he became conscious and said the green tie the attending doctor was wearing was talking to him. On examination, his pupils were dilated. What substance could this patient have taken?</p> <p>A. Cocaine B. Alcohol C. Heroin D. Cannabis E. LSD</p>
71.	<p>A 38 year old woman who gave birth 6 weeks ago presents to her local GP surgery with her husband. She describes 'crying all the time' and 'not bonding' with her baby. She is worried about baby's health constantly and she is unsure if is able to cope with this new change in her life. What is the SINGLE most likely diagnosis?</p> <p>A. Postpartum blues B. Postnatal depression C. Postpartum psychosis D. Anxiety disorder E. Obsessive compulsive disorder (OCD)</p>
72.	<p>A 10 year old boy with behavioural problems is taken to the clinic by his parents. During the appointment, the boy barks and shouts expletives. He is constantly blinking his eyes and unable to sit still. What is the SINGLE most likely diagnosis?</p> <p>A. Asperger syndrome B. Cotard syndrome</p>



	<p>C. Rett syndrome D. Ekbom syndrome E. Tourette's syndrome</p>
73.	<p>A 26 year old man strongly believes that every elderly man he meets is likely to be his father. Although they look different, he is sure it is his father wearing a different disguise. What is the SINGLE most likely kind of delusion this man is suffering from?</p> <p>A. Persecutory delusion B. Erotomania C. Grandiose delusions D. Frégoli delusion E. Delusion of reference</p>
74.	<p>A 68 year old woman has been admitted with poor appetite, weight loss, poor concentration and self neglect for 3 weeks. She has not been eating or drinking adequately and has rarely left her bed. She expresses suicidal ideas and hears voices telling her she is worthless. She has been on antidepressant therapy for the past 3 months with no improvement. What is the SINGLE most appropriate management?</p> <p>A. Additional antidepressants B. Cognitive behavioural therapy C. Interpersonal therapy D. Electroconvulsive therapy E. Antipsychotics</p>
75.	<p>A 28 year old woman complains of hearing strange voices in her bedroom as she is falling asleep in the night. She says there is no one in the room except for her. She is otherwise healthy and without mental illness. What is the SINGLE most likely diagnosis?</p> <p>A. Persecutory delusion B. Cotard syndrome C. Hypnagogic hallucinations D. Capgras syndrome E. Othello syndrome</p>
76.	<p>A 19 year old man accuses his friend of making his right arm swing out to hit a stranger at the park. There is no evidence of this as his friend was at home at that time. What is the SINGLE most appropriate term to describe his condition?</p> <p>A. Delusion of control B. Persecutory delusion C. Grandiose delusions D. Delusion of reference E. Thought insertion</p>



77.	<p>A 29 year old man has been severely depressed over the last 3 years now believes that he does not exist and never existed in this world. He has poor eye contact and speaks softly. He says that people around him are unable to listen and see him because he is inaudible and invisible. What SINGLE kind of delusion is he suffering from?</p> <p>A. Nihilistic delusions B. Delusion of guilt C. Persecutory delusion D. Frégoli delusion E. Clang association</p>
78.	<p>A 27 year old woman finds herself with palpitations and dizziness whenever she is in a meeting at the office. She is very self-conscious and feels that her colleagues are judging her in a harsh way in meetings. She has been asked to present in one of the meetings but she called in sick to avoid being criticised. What is the SINGLE most likely diagnosis?</p> <p>A. Agoraphobia B. Generalized anxiety disorder C. Panic disorder D. Depression E. Social phobia</p>
79.	<p>A 24 year man finds it difficult to come out of a room without having to turn the light switch off and on 3 times. He has tried more than several times to go out of the room without having to do this particular compulsion however he still returns to the room feeling agitated that it was not done. What is the SINGLE most appropriate management?</p> <p>A. Cognitive behavioural therapy B. Selective serotonin reuptake inhibitors (SSRIs) C. Antipsychotics D. MAO inhibitors E. Electroconvulsive therapy (ECT)</p>
80.	<p>A 33 year old man tries not to go outside his house because he thinks that people will look at him and talk about him. He finds difficulty when talking with his peers in a restaurant or under social settings. He avoids these situations as they cause him distress. What is the SINGLE most likely diagnosis?</p> <p>A. Agoraphobia B. Generalized anxiety disorder C. Panic disorder D. Adjustment disorder E. Social phobia</p>
81.	<p>A 71 year old woman looks disheveled, unkempt and with poor eye contact. She has recently lost her husband 2 months ago. She feels hopeless and has been tearful all week. Which SINGLE option describes her condition?</p>



	<p>A. Anxiety B. Hallucinations C. Mania D. High mood E. Low mood</p>
82.	<p>A 33 year old man with a history of severe depression says his insides are rotting and nobody has bothered to bury him. He feels the world no longer exist and nothing matters. His gaze is always downwards and has barely any eye contact with anyone. What SINGLE best term describes his condition?</p> <p>A. Nihilistic delusions B. Delusion of guilt C. Persecutory delusion D. Frégoli delusion E. Clang association</p>
83.	<p>A 24 year old male on remand in prison for murder is referred by the prison doctor. He is noted to be behaving oddly in prison and complains of hallucinating. He has a previous history of IV drug abuse. On questioning, he provides repeated wrong answers to questions nonetheless, his answers are in the correct category. An example, when asked who is the prime minister of England, he answers Bill Clinton. What is the SINGLE most likely diagnosis?</p> <p>A. Capgras syndrome B. Cotard syndrome C. Ganser syndrome D. Somatization disorder E. Hypochondriasis</p>
84.	<p>A 18 year old boy was recently sent to juvenile detention center after he set his father's car on fire. He lacks remorse for setting the car on fire and says he would do it again if he had the chance to. He has always found it difficult to conform to social rules and has no regard for the rights of others. What is the SINGLE most likely diagnosis?</p> <p>A. Acute psychosis B. Antisocial personality disorder C. Mania D. Borderline personality disorder E. Schizophrenia</p>
85.	<p>An 18 year old girl with a body mass index of 17.8 kg/m² has bilateral parotid swelling with thickened calluses on the dorsum of her hand. What is the SINGLE most likely diagnosis?</p> <p>A. Bulimia nervosa B. Anorexia nervosa C. Crohn's disease D. Mumps</p>



	E. Sarcoidosis
86.	<p>A 44 year old man is very depressed and miserable after his wife's death 6 months ago. He sees no point in living now that his wife is not around. He feels regret and wishes he never existed. He refuses any medical help offered. His son has brought him to the emergency department. The son mentions that he can not deal with the father's depression any longer as he has a job and family that to attend to. What is the SINGLE most appropriate next step?</p> <p>A. Voluntary admission to psychiatric ward B. Compulsory admission under Mental Health Act C. Refer to social services D. Alternate housing E. Electroconvulsive therapy</p>
87.	<p>A 22 year man finds it difficult to come out of a room without having to turn the light switch off and on 3 times. He has tried more than several times to go out of the room without having to do this particular compulsion however he still returns to the room feeling agitated that it was not done. He recognizes that he has a problem and is willing to see a psychiatrist. What is the SINGLE most accurate term that describes this situation?</p> <p>A. Nihilistic delusions B. Thought insertion C. Thought block D. Panic attack E. Insight</p>
88.	<p>A 30 year old woman comes to clinic in tears trying to describe the constant irritability she is in when dealing with her 2 small children. She describes herself as easily startled. She is unable to concentrate for long but attributes it to poor sleep as she often gets nightmares of a house fire. Her husband died in a house fire while she was sleeping in the other room last year. What is the SINGLE most appropriate management?</p> <p>A. Reassurance B. Relaxation therapy C. Quetiapine D. Lofepamine E. Fluoxetine</p>
89.	<p>A 19 year old female is brought to the hospital by her parents. They are concerned about her weight. Her body mass index is 12.1 kg/m². She has a mildly depressed mood and has low self-esteem. She has amenorrhoea. She has reduced her food intake in the past couple of months. She has a blood pressure of 70/50 mmHg and a heart rate of 44 beats/minute. What is the SINGLE most appropriate management?</p> <p>A. Start antidepressants B. Family counselling C. Social service</p>



	D. Admission to the psychiatry ward E. Admission to the medical ward
90.	<p>A 32 year old schizophrenic lady complains that she hears voices saying “she is evil”. What is the SINGLE most likely type of hallucinations involved?</p> <p>A. First-person auditory hallucinations B. Second-person auditory hallucinations C. Third-person auditory hallucinations D. Echo de la pensee E. Gedankenlautwerden</p>
91.	<p>A 18 year old male washes his hands 6 times every time he uses the toilet. On his way out of the toilet, he has to switch off the light, turn it back on and turn it off once more. What is the SINGLE most appropriate management?</p> <p>A. Psychodynamic therapy B. Electroconvulsive therapy (ECT) C. Antipsychotics D. Cognitive behavioural therapy (CBT) E. Psychotherapy</p>
92.	<p>A 68 year old man comes in to A&E confused and with a coarse tremor. As the emergency doctor is taking a history, he becomes unconscious. Which of the following medications could account for his symptoms?</p> <p>A. Haloperidol B. Diazepam C. Fluoxetine D. Imipramine E. Lithium</p>
93.	<p>A 42 year old man with a history of bipolar disorder is noted to have high serum levels of lithium and profound hypokalaemia on routine examination. He was recently diagnosed with essential hypertension and his GP had started him on an antihypertensive medication. What is the SINGLE most likely cause of the recent findings?</p> <p>A. Atenolol B. Captopril C. Ramipril D. Spironolactone E. Bendroflumethiazide</p>
94.	<p>A 22 year old woman was brought to the A&E by her friends. She presents with tremors. On examination, she was found to have a temperature of 37.4°C and her pupils dilated. She says when she closes her eyes, she can see colours. What is the SINGLE most likely drug that has taken?</p>



	<p>A. Amphetamines B. Lysergic acid diethylamide (LSD) C. Cocaine D. Heroin E. Ecstasy</p>
95.	<p>A 45 year old woman has been extensively investigated for a lump she believes to be cancer. All investigations done show that the lump is unlikely to be cancer however she is not convinced and does not think the doctors are taking her seriously. She has demanded for another referral. What is the SINGLE most appropriate term that describes her condition?</p> <p>A. Munchausen's syndrome B. Munchausen's by proxy C. Hypochondriasis D. Malingering E. Conversion disorders</p>
96.	<p>A 34 year old man suffering from schizophrenia laughs inappropriately while talking about his father's death with his siblings. What is the SINGLE most appropriate term that describes this?</p> <p>A. Flight of ideas B. Flat affect C. Emotional lability D. Incongruent affect E. Clang association</p>
97.	<p>A 28 year old schizophrenic man refuses to let his father into the house because he has the delusion that his father has been replaced by an identical looking impostor. He easily recognised other family members but would misidentify his father only. What is the SINGLE most likely condition he is suffering from?</p> <p>A. Capgras syndrome B. Ganser syndrome C. Todd's syndrome D. Frégoli delusion E. Cotard syndrome</p>
98.	<p>A 33 year old man who lives with his mother, always thinks when the traffic lights turn red, his mother is calling him to come home. This is followed by his actions to drive back home. What is the SINGLE most likely diagnosis?</p> <p>A. Obsessive compulsive disorder (OCD) B. Generalised Anxiety Disorder (GAD) C. Schizophrenia D. Bipolar disorder E. Cyclothymia</p>



99.	<p>A 33 year old schizophrenic man hears people only when he is about to fall asleep. What is the SINGLE most likely phenomenon?</p> <p>A. Hypnopompic hallucinations B. Hypnagogic hallucinations C. Hippocampal hallucinations D. Delirious hallucinations E. Auditory hallucinations</p>
100.	<p>A 30 year old man complains of episodes of hearing music and threatening voices within a couple of hours of heavy drinking with his friends at a friends birthday party. What is the SINGLE most likely diagnosis?</p> <p>A. Delirium tremens B. Wernicke's encephalopathy C. Korsakoff's psychosis D. Alcohol hallucinosis E. Temporal lobe dysfunction</p>
101.	<p>A 25 year old woman has had several sudden onset episodes of palpitations, sweating, and fear. She notices her hands shake when they occur. These episodes occur almost everyday and sometimes can wake her from her sleep. She has no previous psychiatric disorder and is not on any medications. What is the SINGLE most likely diagnosis?</p> <p>A. Pheochromocytoma B. Panic disorder C. Generalized anxiety disorder D. Agoraphobia E. Acute stress disorder</p>
102.	<p>A 52 year old woman has been depressed ever since her husband died half a year ago. She was started on amitriptyline by her GP 3 months ago to help battle her depression. She now feels much better and sleeps well. She still think about her husband occasionally and the thoughts bring her mood down but she has drastic improvements as compared to a few months ago. She wants to know if she can stop medication. What is the SINGLE best advice to give her?</p> <p>A. Stop amitriptyline and start cognitive behavioural therapy (CBT) B. Stop amitriptyline and start bereavement counselling C. Stop amitriptyline and start psychoanalysis D. Stop amitriptyline and review in 4 weeks E. Continue amitriptyline for another 3 more months</p>
103.	<p>A 37 year old man was recently sent to jail for breaking all the windows of a shop with his bat. When the manager tried to stop him, he hit the manager on the head. He has a history of many convictions and has been imprisoned many times. He finds it difficult to keep close relationships. He has 2 boys with his ex--wife but does not contact them. What is the most SINGLE most likely diagnosis?</p>



	<p>A. Borderline personality disorder B. Schizophrenia C. Avoidant personality disorder D. Histrionic personality disorder E. Antisocial behavior disorder</p>
104.	<p>A 35 year old male is bitterly annoyed with everyone around him. He complains that they are putting ideas into his head. What is the SINGLE most likely phenomenon?</p> <p>A. Thought block B. Thought insertion C. Thought broadcasting D. Thought withdrawal E. Thought echo</p>
105.	<p>A 64 year old woman has been brought by her son for psychiatric evaluation. She says that she has stopped living with her husband because she is convinced that it is someone else posing to be him. What is the SINGLE most likely condition she is suffering from?</p> <p>A. Delusion of reference B. Delusion of control C. Cotard syndrome D. Delusion of persecution E. Capgras syndrome</p>
106.	<p>A 21 year old woman was brought to the Emergency Department by her boyfriend. She has many self inflicted superficial lacerations on her forearm. She is distressed and constantly says her boyfriend is going to end the relationship. She denies trying to end her life. What is the SINGLE most likely diagnosis?</p> <p>A. Acute psychosis B. Antisocial personality disorder C. Psychotic depression D. Borderline personality disorder E. Schizophrenia</p>
107.	<p>A 33 year old women in the psychiatric ward diagnosed with schizophrenia, complains that she is unable to think straight because the nurse is stealing her thoughts. What is the SINGLE most likely phenomenon?</p> <p>A. Thought block B. Thought insertion C. Thought broadcasting D. Thought withdrawal E. Thought block</p>



108.	<p>A 30 year old schizophrenic female attacks her mother believing that aliens have replaced her with an exact double. What is the SINGLE most likely condition she is suffering from?</p> <p>A. Capgras syndrome B. Ganser syndrome C. Todd's syndrome D. Frégoli delusio E. Cotard syndrome</p>
109.	<p>A 17 year old girl who was 'fine' until her boyfriend ended their relationship. Out of anger, she took 10 tablets of paracetamol after drinking alcohol. She is brought into A&E by her mother. What is the SINGLE most appropriate next course of action?</p> <p>A. Refer to psychiatry B. Liver transplant C. Refer to GP D. Discharge home. No referral needed. E. Start N-acetylcysteine</p>
110.	<p>A 22 year old man is distressed that he hears the voice of his deceased uncle telling him that he is being spied on. He feels low in mood and anxious. He has not left the house for 2 weeks and has recently starting to drink increasing quantities of alcohol due to his anxiety. His speeches are interrupted with silence for a few seconds followed by topics unrelated to what was being discussed. He feels he is no longer in control of his own body and thoughts. What is the SINGLE most suitable medication to treat his symptom?</p> <p>A. Diazepam B. Disulfiram C. Fluoxetine D. Lithium E. Olanzapine</p>
111.	<p>A 37 year old woman who delivered 3 days ago is now concerned about her mood. She has trouble sleeping and feels generally anxious and tearful. She is unable to explain why she is crying all the time. She has no history of mental health disorders in the past. What is the SINGLE most appropriate management?</p> <p>A. Citalopram B. Cognitive behavioral therapy (CBT) C. Fluoxetine D. Reassurance E. Admit mother to mother and baby unit</p>
112.	<p>A 36 year old woman contacts the police to notify them that she was responsible for a recent disastrous flood which had resulted in loss of lives. What is the SINGLE most likely kind of delusions she is suffering from?</p>



	<p>A. Persecutory delusion B. Frégoli delusion C. Delusion of guilt D. Nihilistic delusions E. Delusion of reference</p>
113.	<p>A 52 year old woman speaks rapidly without any pause and ignores interruptions. She barely even pauses to take enough breaths. What is the SINGLE best term to describe this kind of speech?</p> <p>A. Flight of ideas B. Broca's aphasia C. Wernicke's aphasia D. Pressure of speech E. Verbal dysphasia</p>
114.	<p>A 36 year old woman was recently admitted to a psychiatric ward. She believes that the staff and other patients know exactly what she is thinking all the time. What is the SINGLE most likely phenomenon</p> <p>A. Thought insertion B. Thought withdrawal C. Thought block D. Thought broadcasting E. Hallucination</p>
115.	<p>A 23 year old single male was brought to emergency department by his father exhausted and frightened. His father tells you that his son, who was previously healthy, had, for no apparent reason, a sudden attack of fear, dizziness, sweating, palpitations and the feeling that his heart is going to stop beating. The symptoms started to decrease gradually after about 10 minutes. Which is the SINGLE most likely?</p> <p>A. Panic attack B. Delirious state C. Alcohol withdrawal D. Social phobia E. Pheochromocytoma</p>
116.	<p>A 33 year old female presents to her GP because of low moods. She has difficulty sleeping and feels tired at work. She refuses to go out with her friends and rather spends time resting on her bed. She is eating less and has lost 8 kg in the last 10 weeks. A year ago, she was productive, full of energy, optimistic, needed very little sleep and always wanted to go out. Her BMI is 27. What is the SINGLE most likely diagnosis?</p> <p>A. Hypomania B. Bipolar disorder C. Borderline personality disorder D. Depression</p>



	E. Mania
117.	<p>A 20 year old boy is brought by his parents to the emergency department. He is agitated and euphoric. The parents suspect that he has taken drugs. Examination reveals a perforated nasal septum. What is the SINGLE most likely drug that was taken?</p> <p>A. Heroin B. Cocaine C. Ecstasy/MDMA/amphetamine D. Alcohol E. Opioids</p>
118.	<p>A 38 year old woman believes that a famous politician has been sending her flowers every day and is in love with her. She says that he drops hints that he loves her when he speaks publicly on television. The famous politician has had no contact with this lady. What is the SINGLE most likely diagnosis?</p> <p>A. Pyromania B. Erotomania C. Rejected stalker D. Trichotillomania E. Grandiosity</p>
119.	<p>A 27 year old man presents with symptoms characterized by alternating mood swings associated with flight of ideas, and overactivity. Three months ago he had low moods with lack of energy. What is the SINGLE most likely diagnosis?</p> <p>A. Bipolar affective disorder B. Dysthymia C. Mania D. Hypomania E. Cyclothymia</p>
120.	<p>A 55 year old man is brought to the GP surgery by his wife for a review of a growth on his forehead. His wife wants the growth removed but he refuses and says that the growth helps him think clearly. What is the SINGLE most appropriate next course of action?</p> <p>A. Assess his mental capacity to refuse treatment B. Remove the lesion C. Refer to A&E D. Perform a Mini Mental Status Examination (MMSE) E. Refuse surgery and review in 2 weeks</p>
121.	<p>A 56 year old chronic alcoholic man wants to attend his daughter's wedding in 2 weeks and does not want to be drinking during the wedding. He says he is determined to quit drinking alcohol but wants extra help. What is the SINGLE most appropriate medication?</p> <p>A. Acamprosate</p>



	<p>B. Refer to clinical psychologist C. Vitamin B12 D. Desipramine E. Refer to community mental health support group</p>
122.	<p>A 35 year old man is seen by his psychiatrist for severe depression. He says that the world has ended and is no longer real. He thinks that he no longer exist in this world. He barely has eye contact with the psychiatrist. What is the SINGLE most appropriate diagnosis?</p> <p>A. Somatization disorder B. Hypochondriasis C. Conversion disorder D. Nihilistic delusions E. Capgras syndrome</p>
123.	<p>A 32 year old lady has recently become more active over the past year. She sleeps less and recently bought a house and 2 new cars. She notices that her sex drive has increased. She often starts a task but is not able to finish it as she has difficulty in focusing on one task alone. What is the SINGLE most likely diagnosis?</p> <p>A. Bipolar disorder B. Mania C. Hypomania D. Schizophrenia E. Attention deficit hyperactivity disorder (ADHD)</p>
124.	<p>A 23 year old man feels anxious and agitated when faced with stress. He has an interview in 3 days and would like some help in relieving his symptoms for the interview. What is the SINGLE most appropriate management?</p> <p>A. Selective serotonin reuptake inhibitors B. Cognitive Behavioural Therapy C. Propranolol D. Diazepam E. Rebreath into paper bag</p>
125.	<p>A 33 year old schizophrenic says the following. "Life is unfair, I eat air, lawn chair, I like fairs, fairs have food, it must be good, in adulthood, I misunderstood". What term describes this patient's speech?</p> <p>A. Neologism B. Pressure of speech C. Broca's aphasia D. Wernicke's aphasia E. Clang association</p>



126.	<p>A 62 year old woman who had a repair of strangulated femoral hernia 2 days ago becomes aggressive and confused. This is followed by a seizure. Her blood tests show:</p> <p>Haemoglobin 129 g/L Mean cell volume (MCV) 112 fL Gamma glutamyl transferase (yGT) 120 u/L Alkaline phosphatase (ALP) 110 iu/L</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Electrolyte imbalance B. Delirium tremens C. Wernicke's encephalopathy D. Korsakoff's psychosis E. Hypoglycaemia</p>
127.	<p>A 24 year old woman has severe depression 3 months after the birth of her first child. She is breastfeeding but has not cleaned herself or her newborn child for the last 3 weeks. She has lost interest in her hobbies and keeps crying. Her husband is concerned and has brought her to the hospital. However, she is convinced that her husband and her family wants to take her baby away and is likely to kill her. What is the SINGLE most appropriate treatment?</p> <p>A. Fluoxetine B. Citalopram C. Cognitive behavioural therapy (CBT) D. Electroconvulsive Therapy (ECT) E. Haloperidol</p>
128.	<p>A 29 year old women has been taking selective serotonin reuptake inhibitors for the past 6 months for depression after the death of her husband 10 months ago. She feels her symptoms have improved and has decided to stop her medications. Several weeks after discontinuing her medications, she feels she has developed pancreatic cancer similarly to her late husband. What is the SINGLE most appropriate next step in management?</p> <p>A. Restart selective serotonin reuptake inhibitors B. Start on a tricyclic antidepressant C. Neuropsychiatric analysis D. Cognitive behavioural therapy E. Start antipsychotics</p>
129.	<p>A 62 year old schizophrenic man is brought to the Emergency Department in an agitated state. He is lashing out violently and throws any equipment around him at the hospital staff. He seems to be hearing voices which are causing him distress. Which drug due to its relative lack of autonomic side effects is a drug of choice in the management of agitation in this man?</p> <p>A. Haloperidol B. Diazepam</p>



	<p>C. Risperidone D. Clozapine E. Olanzapine</p>
130.	<p>A 44 year old alcoholic was admitted for alcohol intoxication. He has been treated and he is now planned for discharge. He admits to not being able to spend a day without drinking. Which of the following statement would show that this man is still dependant on alcohol?</p> <p>A. Drinks 10 units of alcohol a week B. Drunk driving C. Does not feel remorse after drinking D. Drinks wine to help him sleep E. Drinking alcohol immediately after waking up</p>

SAMPLE



RESPIRATORY SAMPLE



1.	<p>A 28 year old male is admitted with acute exacerbation of asthma. He has a temperature of 38.1°C and a productive cough. He is treated initiated with 100% oxygen and salbutamol nebulizers. Despite treatment, his oxygen saturation is 88% and respiratory rate is 34 breaths/minute. What is the SINGLE most appropriate next step in management?</p> <p>A. Hydrocortisone IV B. IV antibiotics C. IV salbutamol D. IM adrenaline E. IV adrenaline</p>
2.	<p>A 27 year old female attends outpatient department with a fever and dry cough. She has had a headache, muscle pain and joint pain for more than one week. She has a temperature of 37.5°C, a pulse of 100 beats/minute, a blood pressure of 110/70 mmHg and a respiratory rate of 20 breaths/minute. A Chest X-ray report shows bilateral patchy consolidation. What is the SINGLE most likely causative organism?</p> <p>A. Pneumococcal pneumonia B. Legionella C. Mycoplasma pneumoniae D. Klebsiella E. Chlamydia pneumoniae</p>
3.	<p>A 74 year old man who has been a smoker since he was 20 has recently been diagnosed with small cell lung cancer. What is the SINGLE most likely serum electrolyte picture that confirms the presence of Syndrome of inappropriate antidiuretic hormone secretion (SIADH)?</p> <p>A. High serum Na, low serum osmolality, high urine osmolality B. Low serum Na, low serum osmolality, high urine osmolality C. Low serum Na, high serum osmolality, high urine osmolality D. High serum Na, low serum osmolality, low urine osmolality E. High serum Na, high serum osmolality, low urine osmolality</p>
4.	<p>A 68 year old man has malaise and cough for 5 days. He has a temperature of 38.5°C. There is dullness on percussion of the left lung base. What is the SINGLE most appropriate investigation?</p> <p>A. Bronchoscopy B. Chest X-ray C. CT chest D. MRI E. V/Q scan</p>
5.	<p>A 16 year old boy who attends boarding school feels unwell. He developed a dry cough for the last few days. On examination, there are target lesions seen on the back of his hands. A chest X-ray was performed and it shows bilateral consolidations. What is the SINGLE most likely causative organism?</p> <p>A. Staphylococcus aureus</p>



	<p>B. Legionella C. Mycoplasma pneumoniae D. Klebsiella E. Streptococcus pneumoniae</p>
6.	<p>A 33 year old man is referred for an X-ray as he complains of a persistent cough, chest pain and excessive purulent sputum. He has a history of recurrent chronic chest infections. On examination, drumstick-shaped fingers were noted. What is the SINGLE most likely diagnosis?</p> <p>A. Fibrosing alveolitis B. Mesothelioma C. Bronchiectasis D. Pulmonary tuberculosis E. Bacterial endocarditis</p>
7.	<p>A 22 year old man presents with episodes of dyspnoea, starting suddenly. This usually occurs when he is in a crowded area like a lift. When he is breathless, he also notices tingling around his mouth and he feels light-headed. These episodes usually go away after a while. An arterial sample was taken for blood gases during one of the episodes. What is the SINGLE most likely result of the arterial blood gas (ABG)?</p> <p>Normal Values:</p> <p>PaO₂ > 10 kPa PaCO₂ 4.7–6 kPa pH 7.35 - 7.45 Bicarbonate (HCO₃⁻) 22-26 mmol/L</p> <p>A. PaO₂ = 8.1 kPa, PaCO₂ = 2.6 kPa, pH = 7.55, HCO₃⁻ = 26 mmol/l B. PaO₂ = 13.6 kPa, PaCO₂ = 2.5 kPa, pH = 7.56, HCO₃⁻ = 13 mmol/l C. PaO₂ = 13.5 kPa, PaCO₂ = 6.3 kPa, pH = 7.28, HCO₃⁻ = 24 mmol/l D. PaO₂ = 8.3 kPa, PaCO₂ = 6.4 kPa, pH = 7.27, HCO₃⁻ = 24 mmol/l E. PaO₂ = 13.1 kPa, PaCO₂ = 2.7 kPa, pH = 7.57, HCO₃⁻ = 25 mmol/l</p>
8.	<p>A 10 year old girl with diagnosed asthma is having frequent coughs and wheezing that wakes her up at night. She is compliant with her asthma medication of inhaled corticosteroid 800 mcg/day, short-acting bronchodilators as required, inhaled long-acting B2 agonist (LABA) and theophylline. Her inhaler technique is good. What is the SINGLE most appropriate next step in management?</p> <p>A. Add oral corticosteroids B. Increase dose of inhaled corticosteroids C. Add sodium cromoglycate D. IM adrenaline E. Magnesium sulphate</p>
9.	<p>A 26 year old smoker has a history of wheezing, chest tightness and breathlessness at night and early morning. Her past medical history includes eczema. What is the SINGLE most likely diagnosis?</p>



	<p>A. COPD B. Asthma C. Pneumoconiosis D. Bronchiectasis E. Chronic bronchitis</p>
10.	<p>A 28 year old male is admitted with acute exacerbation of asthma. He is treated initiated with 100% oxygen, salbutamol nebulizers and hydrocortisone 100mg IV. Despite treatment, his oxygen saturation is 89% and respiratory rate is 30 breaths/minute. What is the SINGLE most appropriate next step in management?</p> <p>A. Prednisolone 40mg PO B. Add in ipratropium 0.5 mg to nebulizers C. IV salbutamol D. IM adrenaline E. Stop administration of oxygen</p>
11.	<p>A 22 year old, tall thin man develops sudden chest pain and becomes breathless while driving. There is no history of trauma. What is the SINGLE most appropriate investigation?</p> <p>A. Cardiac enzymes B. Chest X-ray C. CT D. ECG E. V/Q scan</p>
12.	<p>A 56 year old man complains of increased volume of sputum with specks of blood and chest pain. He has a history of recurrent chronic chest infections and deep vein thrombosis which happened 3 years ago. Finger clubbing was noted on examination. A chest X-ray shows tramlines but is otherwise normal. What is the SINGLE most likely diagnosis?</p> <p>A. Pulmonary embolism B. Bronchial carcinoma C. Bronchiectasis D. Pulmonary tuberculosis E. Chronic sinusitis</p>
13.	<p>A 6 year old girl has had 2 short episodes of cough and wheeze over the last 12 months. These 2 acute episodes responded quickly to bronchodilator. She has no symptoms or abnormal physical signs at the moment. She has slight eczema and her mother has a history of asthma when she was young. What is the SINGLE most appropriate investigation?</p> <p>A. Chest X-ray B. Peak flow rate diary C. Pulse oximetry D. Spirometry E. Sweat test</p>



14.	<p>A 34 year old HIV positive man presents with fever, dry cough and shortness of breath. He is tachypnoeic but his chest is clear. Oxygen saturation is normal at rest but drops on exercise. What is the SINGLE most likely diagnosis?</p> <p>A. Cytomegalovirus infection B. Candida infection C. Pneumocystis carinii infection D. Cryptococcal infection E. Toxoplasmosis</p>
15.	<p>A 56 year old man who has a history of hypertension and asthma recently had a change of medication which was prescribed by his GP. 2 days after starting the new medication, he develops wheezing and shortness of breath. What is the SINGLE most likely medication that would have caused this?</p> <p>A. Atenolol B. Ramipril C. Bendroflumethiazide D. Verapamil E. Furosemide</p>
16.	<p>A 29 year old woman has been short of breath for the last 15 hours and is feeling unwell. An arterial blood gas is taken:</p> <p>PaO₂ 8.8 kPa PaCO₂ 3.2 kPa pH 7.50 Bicarbonate (HCO₃⁻) 20 mmol/L</p> <p>Normal Values: PaO₂ > 10 kPa PaCO₂ 4.7–6 kPa pH 7.35 - 7.45 Bicarbonate (HCO₃⁻) 22-26 mmol/L</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Diabetic ketoacidosis B. Methanol overdose C. Panic attack D. Pulmonary embolus E. Severe vomiting</p>
17.	<p>A 33 year old man has mild headache and myalgia for 2 days followed by high fever, chills, rigors and a cough. His cough was initially dry but progressed to be productive. He has just returned from a conference in Greece where he mentions that he swam and used the hot tubs in the hotel. He has a temperature of 38.1°C and is seen to be dyspnoeic. Chest X-ray shows patchy alveolar infiltrates. What is the SINGLE most likely organism which would have caused his symptoms?</p>



	<p>A. Legionella pneumophila B. Mycoplasma pneumoniae C. Staphylococcus aureus D. Streptococcus pneumoniae E. Klebsiella pneumoniae</p>
18.	<p>A 56 year old lady with lung cancer presents with urinary retention, postural hypotension, diminished reflexes and sluggish pupillary reaction. What is the SINGLE most likely explanation for her symptoms?</p> <p>A. Paraneoplastic syndrome B. Progression of lung cancer C. Brain metastasis D. Hyponatraemia E. Spinal cord compression</p>
19.	<p>A 25 year old tall man presents to A&E with increasing dyspnoea and right sided chest pain. He has been a heavy smoker for the past 4 years. He has no past medical history. What is the SINGLE most likely diagnosis?</p> <p>A. Pulmonary embolism B. Myocardial infarction C. Asthma D. Pleural effusion E. Primary Pneumothorax</p>
20.	<p>A 34 year old woman with a smoking history has had an uneventful laparoscopic cholecystectomy 18 hours ago. She is now complaining of shortness of breath. She has a pulse rate of 108 bpm and a temperature of 37.8°C. There are signs of reduced air entry at the right base. Chest X-ray shows no obvious abnormality. What is the SINGLE most appropriate next step?</p> <p>A. Unfractionated heparin B. IV Ceftriaxone C. PO Chlorpheniramine D. Chest physiotherapy E. D-dimers</p>
21.	<p>A 65 year old retired builder complains of persistent dull chest pain and shortness of breath. He is a smoker and started smoking since a young age. He looks thin and his clothes are oversized. Finger clubbing is noted on examination. What is the SINGLE most likely diagnosis?</p> <p>A. Fibrosing alveolitis B. Bronchiectasis C. Tuberculosis D. Mesothelioma E. Cystic fibrosis</p>



22.	<p>A 11 year old girl has a history of asthma and is currently on short-acting bronchodilators. Her parents feels that it is not well controlled as she frequently wakes up at night with wheezing and coughing. Her inhaler technique is good. What is the SINGLE most appropriate next step in management?</p> <p>A. Add oral corticosteroids B. Add inhaled steroid C. Add sodium cromoglycate D. Add leukotriene receptor antagonist E. Add inhaled long-acting B2 agonist (LABA)</p>
23.	<p>A 10 year old boy who takes regular dose inhaled steroids for his longstanding asthma has been advised to use bronchodilators to control his acute attacks. His parents are unsure when he should use his bronchodilator. What is the SINGLE most appropriate investigation to perform?</p> <p>A. Chest X-ray B. Pulmonary function test C. Peak flow rate diary D. Pulse oximetry E. Blood test to look for eosinophilia</p>
24.	<p>A 38 year old woman is brought to the A&E after falling down the stairs and injuring her rib. She complains of shortness of breath. A chest X-ray was performed to rule out a rib fracture. Bilateral hilar lymphadenopathy was seen on the chest X-ray. On auscultation, there are vesicular breath sounds. On examination, there are red lesions on both her shins which are tender. What is the SINGLE most likely diagnosis?</p> <p>A. Bronchial asthma B. Cystic fibrosis C. Sarcoidosis D. Bronchiectasis E. Silicosis</p>
25.	<p>A 19 year old man has a history of exercise induced asthma which has previously been controlled using a salbutamol inhaler as required. He is taking beclomethasone inhaler regularly but he now gets asthma attacks with exercise. What is the SINGLE most appropriate action?</p> <p>A. Add on tiotropium B. Take regular salbutamol and add on budesonide inhaler C. Add on sodium cromoglycate D. Add on oral steroid E. Increase Inhaled steroid</p>
26.	<p>A 55 year old woman with a persistent cough and history of smoking develops left sided chest pain exacerbated by deep breathing. She has a temperature of 38.2°C and basal crackles are heard on auscultation. What is the SINGLE most likely diagnosis?</p>



	<p>A. Dissecting aneurysm B. Pericarditis C. Pneumonia D. Pneumothorax E. Pulmonary embolism</p>
27.	<p>A 50 year old man has had hoarseness of voice and a left drooping eyelid for the past 2 months. He also has diminished sweating on same side of face. Finger clubbing is noted on examination. He smokes 20 cigarettes a day for the last 30 years. What is the SINGLE most likely diagnosis?</p> <p>A. Laryngeal carcinoma B. Thyroid carcinoma C. Carcinoma of right bronchus D. Mesothelioma E. Pancoast tumour</p>
28.	<p>A 65 year old known case of liver cancer and metastasis presents with gastric reflux and bloatedness. Osteoporosis was diagnosed on a dexa scan. He also has shortness of breath and basal consolidation in the left lung was seen on a Chest X-ray. What is the SINGLE most appropriate next step in management?</p> <p>A. Proton pump inhibitor IV B. Alendronate C. IV antibiotics D. Analgesia E. Proton pump inhibitor PO</p>
29.	<p>A 68 year old woman presents to the emergency department from her nursing home complaining of shortness of breath. She has a temperature of 38.7°C and productive cough. Her sputum is noted to be a rusty colour. On auscultation, crackles are heard over the right lung base. A chest X-ray was done and shows right lower lobe consolidation. She has a blood pressure of 100/65 mmHg and a pulse rate of 102 beats/minute. A urinalysis shows 1+ leucocytes with no nitrates or protein. What is the SINGLE most likely organism causing her symptoms?</p> <p>A. Streptococcus pneumoniae B. Staphylococcus aureus C. Coxiella burnetii D. Mycoplasma pneumoniae E. Escherichia coli</p>
30.	<p>A 29 year old HIV positive man attends the outpatient department with complaints of persistent cough and copious amount of purulent sputum. He also has dyspnoea and chest pain. On auscultation, inspiratory crackles are heard at the base of the lung. A chest X-ray shows tram track opacities. What is the SINGLE most likely diagnosis?</p> <p>A. Interstitial lung disease B. Bronchiectasis</p>



	<p>C. Tuberculosis D. Influenza E. Sarcoidosis</p>
31.	<p>A 27 year old male is admitted with acute exacerbation of asthma. He is treated initiated with 100% oxygen and salbutamol nebulizers. IV hydrocortisone was prescribed but it was not available in the department. What is the SINGLE most appropriate next step in management?</p> <p>A. Oral prednisolone 40 mg B. IV magnesium sulphate C. IV salbutamol D. IM adrenaline E. IV adrenaline</p>
32.	<p>A 24 year old male is admitted with acute severe asthma. He is treated initiated with 100% oxygen, nebulized salbutamol, and IV hydrocortisone. Ipratropium bromide was added to nebulizers. Despite the initial treatment there has been no improvement. What is the SINGLE most appropriate next step in management?</p> <p>A. IV aminophylline B. IV magnesium sulphate C. IV salbutamol D. IM adrenaline E. IV adrenaline</p>
33.	<p>A 45 year old chronic smoker attends the outpatient department with complaints of persistent cough and copious amount of purulent sputum. He had history of measles in the past. On examination, finger clubbing is noted and inspiratory crepitations on auscultation is heard. A chest X-ray shows tram track opacities. What is the SINGLE most likely diagnosis?</p> <p>A. Interstitial lung disease B. Bronchiectasis C. Asthma D. COPD E. Sarcoidosis</p>
34.	<p>A 64 year old man who was previously exposed to asbestos for 35 years while working as a builder has chest pain and shortness of breath. The diagnosis of mesothelioma has been made. His shortness of breath has been worsening over the last couple of days. A recent chest x-ray shows bilateral pleural effusion. What is the SINGLE most appropriate management?</p> <p>A. Indwelling pleural drain B. Physiotherapy C. Radiation therapy D. Pneumonectomy E. Chemotherapy</p>



35.	<p>A 24 year old male is admitted with acute exacerbation of asthma. He is treated initiated with 100% oxygen. He continues to deteriorate. What is the SINGLE most appropriate next step in management?</p> <p>Plab Lab Values</p> <p>A. Salbutamol nebulized with oxygen B. IV magnesium sulphate C. IV salbutamol D. IM adrenaline E. IV adrenaline</p>
36.	<p>A 33 year old chronic smoker attends the outpatient department with complaints of persistent cough, copious amount of purulent sputum and dyspnoea. He has a history of recurrent chest infections in the past. Coarse crackles are found at the base of his lung on auscultation. Bronchiectasis is suspected. What is the SINGLE most definitive test to diagnose bronchiectasis?</p> <p>A. High-resolution computed tomography (HRCT) chest B. Serum immunoglobulins C. Chest X-ray D. Lung function tests E. Bronchoscopy</p>
37.	<p>A 32 year old female smoker has a history of wheeze, shortness of breath and fever. Her past medical history includes eczema. FEV1/forced vital capacity (FVC) was measured and was found to be low. This was improved after taking bronchodilators. What is the SINGLE most likely diagnosis?</p> <p>A. COPD B. Infective exacerbation of asthma C. Tuberculosis D. Bronchiectasis E. Chronic bronchitis</p>
38.	<p>A 17 year old boy with a history of asthma suddenly develops chest pain and increasing breathlessness during a game of football. He has reduced breath sounds on the right side. His oxygen saturation is 94% on air. What is the SINGLE most appropriate investigation?</p> <p>A. Sweat test B. Chest X-ray C. CT chest D. Exercise challenge E. D-dimer</p>
39.	<p>An 8 year old girl with diagnosed asthma is having frequent night coughs and mild exercise-induced wheezing. She is compliant with her asthma medication of inhaled corticosteroid 400 mcg/day and short-acting bronchodilators as required. Her inhaler technique is good. What is the SINGLE most appropriate next step in management?</p> <p>A. Add leukotriene antagonist</p>



	<p>B. Add oral theophylline C. Add regular inhaled long-acting B2 agonist (LABA) D. Increase dose of inhaled corticosteroid E. Short course of oral corticosteroid</p>
40.	<p>A 50 year old chronic smoker attended the outpatient department with complaints of chronic productive cough, dyspnoea and wheeze. A chest X-ray was ordered and reported as hyperinflated lung with flattened hemidiaphragm and a small cardiac silhouette. Full blood count shows an increase in haematocrit. What is the SINGLE most likely diagnosis?</p> <p>A. Interstitial lung disease B. Wegener's granulomatosis C. Lung cancer D. Chronic obstructive pulmonary disease (COPD) E. Amyloidosis</p>
41.	<p>A 62 year old man has been smoking 15 cigarettes a day for the past 40 years. He is a retired builder and has been working since he was 24 year old. He presents with chest pain, shortness of breath, and has lost significant weight over the last couple of years. Chest X-ray shows bilateral fibrosis and left sided pleural effusion. What is the SINGLE best investigations that will lead to diagnosis?</p> <p>A. Acid fast staining B. Cytology of pleural fluid aspiration C. Magnetic resonance imaging D. Pleural biopsy E. Computed tomography</p>
42.	<p>A 53 year old man with previous history of chronic obstructive pulmonary disease presents with breathlessness and purulent sputum. His oxygen saturation are 85% on air. Arterial blood gas show:</p> <p>PaO₂ = 7.6 kPa PaCO₂ = 7.1 kPa</p> <p>What is the SINGLE most appropriate initial management for his condition?</p> <p>A. 24% oxygen B. Mechanical ventilation C. 100% oxygen D. Nebulized salbutamol E. Intravenous antibiotics</p>
43.	<p>A 39 year old chronic smoker attends the outpatient department with complaints of persistent cough and copious amount of purulent sputum. He has recurrent chronic chest infections in the past. Finger clubbing is noted in examination and inspiratory crackles are heard on auscultation. A chest X-ray was done and results were normal. What is the SINGLE most likely diagnosis?</p> <p>A. Emphysema</p>



	<p>B. Rheumatoid arthritis C. Bronchiectasis D. Lung cancer E. Sarcoidosis</p>
44.	<p>A 10 year old girl is brought to the emergency department by her dad after having fallen in the park. Her elbows are full of cuts and she has not stopped crying since the injury. Her medical history includes asthma. What is the SINGLE most appropriate analgesia to administer?</p> <p>A. Aspirin B. Diclofenac C. Co-codamol D. Ibuprofen E. Paracetamol</p>
45.	<p>A 54 year old patient 7 days after a total hip replacement presents with acute onset breathlessness, and chest pain. On examination, an elevated jugular venous pressure was observed. Her right calf looks swollen. Her pulse rate is 95 bpm and respiratory rate is 24/min. Which SINGLE investigations will be most helpful in leading to a diagnosis?</p> <p>A. Chest X-ray B. CT pulmonary angiogram (CTPA) C. V/Q scan D. D-Dimer E. Doppler ultrasound of legs</p>
46.	<p>A 61 year old man has suddenly become very short of breath. In the last hour, he has had a CT-guided biopsy of a mass in the right lung. His temperature is 36.5°C, heart rate is 120 bpm, BP 90/60 mmHg, and SaO₂ 78% on 15L oxygen. He looks cyanosed, his trachea is deviated towards the left, and breath sounds are much louder over the left hemi-thorax. Which is the SINGLE most appropriate course of action?</p> <p>A. Arterial blood gas B. Urgent chest X-ray C. Insertion of a cannula into the right second intercostal space D. Insertion of a cannula into the left second intercostal space E. Insertion of a chest drain</p>
47.	<p>A 33 year old man has a temperature of 38.5°C, productive cough and chest pain on the right side on inspiration. He has a blood pressure of 100/60 mmHg and a pulse rate of 108 beats/minute. He appears slightly short of breath and has an oxygen saturation of 94% on room air. What is the SINGLE most likely organism causing the patient's symptoms?</p> <p>A. Gram +ve cocci B. Coagulase +ve cocci C. Gram +ve Bacilli D. Acid-Fast Bacilli</p>



	E. Gram –ve cocci
48.	<p>A 28 year old female who has returned from the USA to the UK presents to Accident & Emergency with shortness of breath and a productive cough beginning 3 days after her return to the United Kingdom. Her cough initially contained blood but is now dry. Her only significant history is that she is on the combined oral contraceptive pill. What is the SINGLE most likely diagnosis for this woman's symptoms?</p> <p>A. Community acquired pneumonia B. Pulmonary embolism C. Pulmonary tuberculosis D. Lymphoma E. Lung cancer</p>
49.	<p>A 70 year old man admits to asbestos exposure 20 years ago. He was a heavy smoker but has quit smoking 3 years ago. He has noted weight loss and hoarseness of voice. Which is the SINGLE most likely type of cancer associated with the risk factors and symptoms present?</p> <p>A. Basal cell carcinoma B. Bronchial carcinoma C. Oesophageal carcinoma D. Nasopharyngeal carcinoma E. Oral carcinoma</p>
50.	<p>A 50 year old woman returned by air to the UK from Australia. 3 days later, she presents with a sharp chest pain and breathlessness. Her chest X-ray and ECG are normal. What is the SINGLE most appropriate investigation?</p> <p>A. Bronchoscopy B. Cardiac enzymes C. CT pulmonary angiogram (CTPA) D. MRI E. Pulse oximetry</p>
51.	<p>A 20 year old man presents to A&E after having severe injuries from a road traffic accident. On presentation he is breathless and has severe chest pain. A Chest X-ray shows fractures of the 5th to 7th rib. His systolic blood pressure is 85 bpm, respiratory rate is 25 breaths/min and his pulse rate is 110/min What is the SINGLE most appropriate initial action?</p> <p>A. Antibiotics B. Analgesia C. High flow oxygen D. Secure venous access E. Refer to surgeon</p>
52.	<p>A 20 year old man suddenly develops shortness of breath over the last day. It started when he was playing football. The shortness of breath was associated with right sided pleuritic chest pain. On</p>



	<p>examination, reduced air entry with hyper-resonance was noted over the right lung field. His oxygen saturation was 91% on room air. What is the SINGLE most likely diagnosis?</p> <p>A. Asthma B. Spontaneous pneumothorax C. Tension pneumothorax D. Sarcoidosis E. Chronic obstructive pulmonary disease (COPD)</p>
53.	<p>A 21 year old man has exercised induced asthma and is using a salbutamol inhaler as required and beclomethasone inhaler 400 mcg/day. He complains of wheeze and shortness of breath during exercise despite using salbutamol inhaler just before exercise. What is the SINGLE most appropriate action?</p> <p>A. Add on tiotropium B. Take regular salbutamol and add on budesonide inhaler C. Add on sodium cromoglycate D. Add on oral steroid E. Increase Inhaled steroid</p>
54.	<p>A 60 year old lady is on treatment for ischaemic heart disease, hypertension and hyperlipidaemia. During the night, she complains of wheezing and shortness of breath. What is the SINGLE most likely medication that is responsible for her symptoms?</p> <p>A. Amlodipine B. Atenolol C. Ramipril D. Simvastatin E. Bendroflumethiazide</p>
55.	<p>A 15 year old boy presents to the Emergency Department with a sudden onset of chest pain and increasing shortness of breath during a beach volleyball game. He has a medical history of asthma and is on a beta-2 agonist inhaler. On examination, there is no cyanosis but there are reduced breath sounds on the left side. Which of the following is the SINGLE most appropriate investigation?</p> <p>A. D-dimer B. CT chest C. Chest x-ray D. Peak flow meter E. Spirometry</p>
56.	<p>An 8 year old boy diagnosed with asthma is on salbutamol inhaler and beclomethasone inhaler. However, he wakes up at night with wheezing and shortness of breath. What is the SINGLE most appropriate management?</p> <p>A. Add inhaled long-acting B2 agonist (LABA) B. Increase inhaled corticosteroid dose</p>



	<p>C. Aminophylline D. Oral prednisolone E. Sodium cromoglycate</p>
57.	<p>A 35 year old lady had an emergency C-section following an obstructed labour. Three days post-op she develops a sudden onset of left sided chest pain associated with breathlessness. Her heart rate is 105 bpm. Her left leg is swollen and is pain on palpation. What is the SINGLE best investigation to provide a definitive diagnosis?</p> <p>A. Arterial blood gases B. Chest X-ray C. CT pulmonary angiogram (CTPA) D. D-dimer E. Electrocardiogram (ECG)</p>
58.	<p>A 48 year old farmer presents with malaise, dry cough, chest tightness and shortness of breath. The shortness of breath and cough started only a few hours ago. On auscultation, a wheeze is heard throughout the chest. He has a temperature of 39.2°C, a pulse of 96 beats/minute, a blood pressure of 110/70 mmHg and a respiratory rate of 29 breaths/minute. His chest X-ray shows diffuse micronodular interstitial shadowing. What is the SINGLE most appropriate diagnosis?</p> <p>A. Pulmonary embolism B. Churg-strauss syndrome C. Cryptogenic organizing pneumonia D. Extrinsic allergic alveolitis E. Progressive massive fibrosis</p>
59.	<p>A 35 year old man presents with progressive breathlessness. He has a history of polyarthralgia with painful red lumps appearing on his shins. They are cherry sized and are about 20 or more in number. His chest X-ray shows bilateral hilar lymphadenopathy. What is the SINGLE most likely diagnosis?</p> <p>A. Bronchial asthma B. Cystic fibrosis C. Sarcoidosis D. Bronchiectasis E. Pneumonia</p>
60.	<p>A 33 year old man is brought into the emergency department following a road traffic accident. He is seen to be very short of breath. He has no breath sounds over the right side of his chest. On percussion, the right chest is noted to be hyper-resonant. On examination, his trachea is deviated to the left. His heart rate is 120 beats/minute. His blood pressure is 90/65 mmHg, and has an oxygen saturation of 85% on 15L of oxygen. What is the SINGLE most appropriate course of action?</p> <p>A. Arterial blood gas B. Urgent chest X-ray C. Needle decompression</p>



	D. Urgent computed tomography scan of chest E. Insertion of a chest drain
61.	<p>A 32 year old previously healthy woman has developed pain and swelling on both knees and ankles with a nodular rash over her shins. As part of the investigation a chest X-ray was performed. What is the SINGLE most likely appearance on the chest X-ray?</p> <p>A. Apical granuloma B. Bilateral hilar lymphadenopathy C. Lobar consolidation D. Pleural effusion E. Reticular shadowing in the bases</p>
62.	<p>A 21 year old lady who smokes has a history of wheezing, chest tightness and coughing at night. She also notices these symptoms occur when she goes out in the cold and breathes cold air. What is the SINGLE most likely diagnosis?</p> <p>A. COPD B. Asthma C. Pneumoconiosis D. Bronchiectasis E. Chronic bronchitis</p>
63.	<p>A 46 year old man is being treated for a pleural effusion. A chest drain has been sited just below the 4th rib in the mid-axillary line on his right side. What SINGLE structure is at particular risk of injury?</p> <p>A. Azygos vein B. Diaphragm C. Intercostal artery D. Internal thoracic artery E. Liver</p>
64.	<p>A 54 year old smoker man presents with progressive dyspnoea. He complains of cough, wheeze and a table spoonful of mucopurulent sputum which he coughs out daily for the last 15 months. A spirometry was performed. His FEV1/FVC is 2.4/3.7. After taking salbutamol, the spirometry was performed again which gave a ratio of 2.5/3.8. What is the SINGLE most likely diagnosis?</p> <p>A. Chronic bronchitis B. Asthma C. Bronchiectasis D. Lung fibrosis E. Sarcoidosis</p>
65.	<p>A 68 year old smoker has left sided chest pain which worsens when taking deep breaths. His medical history includes diabetes mellitus and hypertension. On examination, he has a miotic left eye and partial ptosis on the left. There is also wasting of small muscles of the left hand. What is the SINGLE most likely diagnosis?</p>



	<p>A. Costochondritis B. Lung cancer C. Goodpasture's syndrome D. Motor neuron disease E. Progressive massive fibrosis</p>
66.	<p>A 2 year old girl presents with a 4 day history of fever which started with a cough. She has a respiratory rate of 45 beats/minute, oxygen saturation of 94% and a temperature of 38.9C. There are crepitations at the left base on auscultation of the lung fields. Urine dipstick was found to be negative. What is the SINGLE investigations most likely to lead to diagnosis?</p> <p>A. Blood culture and sensitivity B. Erythrocyte sedimentation rate (ESR) C. Chest X-ray D. Urine for Culture and sensitivity E. Cerebrospinal fluid analysis</p>
67.	<p>A 23 year old woman who is on several medications and inhalers for her asthma presents to the hospital with palpitations. Her heart rate is 110 beats/minute. Her peak expiratory flow rate is 400 L/minute. What is the SINGLE most appropriate management?</p> <p>A. Lifestyle changes B. Review medications C. 24 hour ECG monitoring D. Admit for investigations E. Chest X-ray</p>
68.	<p>A 58 year old man who used to work in the shipyard industry was having chronic cough and shortness of breath for several months. He was given salbutamol nebulisers and intravenous antibiotics and admitted to the ward. A computed tomography was performed which showed patchy infiltrates, pleural thickening and pleural effusion. He died 3 days later after which this case was referred to the coroner. What is the SINGLE most likely reason for the referral to the coroner?</p> <p>A. Incorrect diagnosis and management B. Inpatient death in the wards C. Death likely due to industrial disease D. Cancer research purposes E. Death by natural causes</p>
69.	<p>A 79 year old man with longstanding chronic obstructive pulmonary disease has become progressively breathless over the last 2 years. His medications for his COPD include salbutamol and salmeterol inhalers, inhaled corticosteroids and theophylline. His forced expiratory volume in one second (FEV1) is less than 30%. His oxygen saturations are 89% on room air. What is the next appropriate management?</p> <p>A. Assessment for lung transplant</p>



	<p>B. Trial of continuous positive airway pressure C. Trial of noninvasive ventilation D. Assessment for long term oxygen therapy E. Assessment for a short course of oxygen therapy</p>
70.	<p>A 27 year old man presents with chest pain and respiratory distress following a road traffic accident. On examination, his neck veins are noted to be distended and trachea is deviated to the left. Breath sounds are absent on the left and diminished on the right lung field. He has a blood pressure of 80/40 mmHg and a heart rate of 120 beats/minute. What is the SINGLE most appropriate next action?</p> <p>A. Chest X-ray B. Insertion of a cannula into the right second intercostal space C. Insertion of a cannula into the left second intercostal space D. Insertion of a chest drain into right mid-axillary line E. Insertion of a chest drain into left mid-axillary line</p>
71.	<p>A 67 year old smoker presents with cough, breathlessness and wheeze. 24% oxygen by Venturi face mask was initiated and nebulized salbutamol and hydrocortisone were administered. As his dyspnoea did not improve, intravenous aminophylline was administered and an arterial blood gas was sent. He has a respiratory rate of 32 breaths/minute. His arterial blood gas results show:</p> <p>pH 7.32 pCO₂ 7.7 kPa pO₂ 10.1 kPa</p> <p>What is the SINGLE most appropriate next step in management?</p> <p>A. Non-invasive ventilation B. Invasive mechanical ventilation C. Long-acting beta-adrenoceptor agonist D. Intravenous doxapram hydrochloride E. Oral amoxicillin</p>
72.	<p>A 48 year old presents with increasing shortness of breath over the last few months and a dry cough. He has worked in coal mines for 18 years. Chest x-ray and CT scan of the chest demonstrates characteristic upper zone mass-like scarring with calcification and volume loss. The lung opacifications are seen to be associated with radiating strands. What is the SINGLE most likely diagnosis?</p> <p>A. Churg-strauss syndrome B. Cryptogenic organizing C. Extrinsic allergic alveolitis D. Goodpasture's syndrome E. Progressive massive fibrosis</p>
73.	<p>A 48 year old man was admitted with cough and dyspnoea. He has a long history of smoking and has lost 8 kg in the past 5 months. A chest X-ray was performed and showed consolidation on the lower</p>



left lobe. He was started on antibiotics and is due for discharge. What is the SINGLE most appropriate follow up investigations to perform after discharge?

- A. Bronchoscopy
- B. Chest X-ray
- C. Sputum culture
- D. Computed tomography (CT)
- E. Magnetic resonance imaging (MRI)

SAMPLE



RHEUMATOLOGY

SAMPLE



1.	<p>A 45 year old man with severe pain and redness at the metatarsophalangeal joint of his right big toe comes to the Emergency Department. He has never suffered from any form of arthritis before. He has hypertension and was recently started on bendroflumethiazide by his GP. What is the SINGLE most appropriate management?</p> <p>A. Paracetamol B. Allopurinol C. Methotrexate D. NSAIDS E. Flucloxacillin</p>
2.	<p>A 78 year old woman presents with unilateral headache and pain on chewing. Her ESR is 70 mm/hour. She is on oral steroids. What is the SINGLE most appropriate additional treatment?</p> <p>A. Bisphosphonates B. Hormone replacement therapy C. ACE inhibitors D. Beta blockers E. Timolol</p>
3.	<p>A 52 year old woman with a history of systemic lupus erythematosus complains of dry eyes and altered sense of taste. Her voice becomes hoarse when she speaks for long periods of time. What is the SINGLE most likely diagnosis?</p> <p>A. Acquired Angioedema B. Sjogren's syndrome C. Herpes zoster ophthalmicus D. Sarcoidosis E. Scleroderma</p>
4.	<p>A 76 year old who is on medication for hypertension comes to clinic suffering from pain and redness at the metatarsophalangeal joint of his right first toe. Which of the following antihypertensive medication is like most likely to have caused his symptoms?</p> <p>A. Losartan B. Bendroflumethiazide C. Ramipril D. Bisoprolol E. Verapamil</p>
5.	<p>A 44 year old woman complains of a sandy feeling under her eyes that has been present for the last year. She also says that she has difficulty swallowing. On examination, bilateral enlargement of the parotid glands were noted. What is the SINGLE most likely diagnosis?</p> <p>A. C1 esterase deficiency B. Systemic lupus erythematosus C. Mumps</p>



	D. Sarcoidosis E. Sjogren's syndrome
6.	<p>A 45 year old woman complains of pain in her hands precipitated by exposure to the cold weather. She also has breathlessness on walking. When she eats, she can feel food sticking to her throat. She finds it difficult to swallow. It is usually relieved with a drink of water. What is the SINGLE most likely cause of her dysphagia?</p> <p>A. Oesophageal carcinoma B. Systemic sclerosis C. Systemic Lupus Erythematosus D. Pharyngeal carcinoma E. Globus hystericus</p>
7.	<p>A 65 year old man has a generalized rash, fever, joint pain, and muscle pain. His medical history is significant for a late onset asthma associated with nasal polyps. He recently has been diagnosed with heart failure. Eosinophilia was shown on his last blood test. A chest X-ray shows fleeting peripheral pulmonary infiltrates and bilateral multifocal consolidations. What is the SINGLE most likely positive antibody?</p> <p>A. p-ANCA B. c-ANCA C. Anti Ro D. Anti DSDNA E. Anti-centromere</p>
8.	<p>A 32 year old woman has had a febrile illness and sudden onset of pain and swelling of the small joints of her feet and knees for the past two days. She has a maculopapular rash on her soles of her feet. She was previously well. There is no history of relevant travel outside the UK. On examination, conjunctivitis is noted. What is the SINGLE most likely diagnosis?</p> <p>A. Septic Arthritis B. Reactive Arthritis C. Rheumatoid Arthritis D. Psoriatic Arthritis E. Systemic Lupus Erythematosus</p>
9.	<p>A 59 year old male is in the CCU (Cardiac Care Unit). He suffered from a myocardial infarction 2 days ago which is now complicated by cardiac failure. He has now developed sudden onset of pain, redness and swelling of his right knee joint. What is the SINGLE best method for confirming the diagnosis of his swollen knee joint?</p> <p>A. Send joint aspirate for culture B. Send joint aspirate for microscopy C. Serum uric acid levels D. Blood culture E. Erythrocyte sedimentation rate (ESR)</p>



10.	<p>A 48 year old woman with a history of rheumatoid arthritis complains of dry eyes. A Schirmer's test shows decreased tear production. And a rose Bengal stain documents corneal ulcerations. What is the SINGLE most likely diagnosis?</p> <p>A. Acquired Angioedema B. Systemic lupus erythematosus C. Herpes zoster ophthalmicus D. Sarcoidosis E. Sjogren's syndrome</p>
11.	<p>A 61 year old man who suffers from rheumatoid arthritis is complaining of severe pain in the joints of his hands, feet and knees. His medical history includes having had a stroke 2 years ago in which he takes aspirin for. He also takes senna daily to manage his ongoing constipation. What is the SINGLE most appropriate medication to manage his pain?</p> <p>A. Methotrexate B. Ibuprofen C. Co-codamol D. Paracetamol E. Hydroxychloroquine</p> <p>Ibuprofen is the best answer given the options. Methotrexate and hydroxychloroquine are both DMARDs which help prevent disease progression in long term but do not help with the immediate pain. Paracetamol is a good pain relief but it is not suitable for severe pain. The patient suffers from constipation thus co-codamol is not a suitable option as it will worsen his symptoms of constipation.</p> <p>There are no contraindications with using ibuprofen and and low dose aspirin. Concurrent use does increases the risk of gastrointestinal bleeds and one should consider gastroprotection (e.g. a proton pump inhibitor). It is only analgesic dose aspirin that should not be used with NSAIDs.</p>
12.	<p>A 55 year old man has numbness in hands and feet. His medical history is significant for a asthma associated with nasal polyps and facial pain. Eosinophilia was shown on his last blood test. A pulmonary CT scan shows ground-glass inflammation. What is the SINGLE most likely diagnosis?</p> <p>A. Churg-Strauss Syndrome B. Temporal arteritis C. Polyarteritis Nodosa D. Wegener granulomatosis E. Inflammatory myopathies</p>
13.	<p>A 62 year old lady has a right sided headache and blurry vision. She says it started of being with tenderness at her scalp when combing her hair. ESR came back elevated. What is the SINGLE most appropriate management?</p> <p>A. Prednisolone B. Temporal artery biopsy</p>



	<p>C. CT head D. IV acetazolamide E. Measurement of intraocular pressure</p>
14.	<p>A 30 year old man presents with wheezing intermittently over the past few weeks. Eosinophilia was shown on his last blood test. His blood test show the presence of p-ANCA antibodies. What is the SINGLE most likely diagnosis?</p> <p>A. Churg-Strauss Syndrome B. Sarcoidosis C. Polyarteritis Nodosa D. Pleural effusion E. Tuberculosis</p>
15.	<p>A 62 year old lady presents with right sided headache and decreased, blurry vision. She also has pain around her jaw especially when chewing. What is the SINGLE most appropriate initial investigation?</p> <p>A. ESR B. Temporal artery biopsy C. CT head D. X-ray orbit E. Measurement of intraocular pressure</p>
16.	<p>A 59 year old man has right sided headache and decreased, blurry vision. He also has pain around her jaw especially when chewing. ESR was shown to be elevated. Corticosteroids have been started. What is the SINGLE most appropriate medication to be added?</p> <p>A. ACE inhibitors B. Beta blockers C. Aspirin D. NSAIDS E. Timolol</p>
17.	<p>A 27 year old female complains of intermittent pain in her fingers usually brought about in cold weather. She describes episodes of numbness and burning of the fingers. Her fingers usually become very pale if she does not wear gloves when going outdoors. What is the SINGLE most likely diagnosis?</p> <p>A. Kawasaki disease B. Takayasu arteritis C. Buerger's disease D. Embolism E. Raynaud's phenomenon</p>
18.	<p>A 27 year old man has recurrent lower back pain and stiffness. The pain is worse in the morning and improves when he exercises. He finds it difficult to bend his back. He has no history of trauma to his back. What is the SINGLE most appropriate investigation to perform?</p>



	<p>A. Erythrocyte sedimentation rate (ESR) B. X-ray of sacroiliac joints C. HLA B27 D. X-ray of thoracic spine E. Computed tomography of lumbar spine</p>
19.	<p>A 61 year old woman with a medical history of diabetes and rheumatoid arthritis presents with left knee pain which has been worsening over the last 24 hours. She has fever and rigors. On examination, there is decreased range of movement and the left knee joint is red and oedematous. Septic arthritis is suspected. What is the SINGLE most common organism responsible for septic arthritis?</p> <p>A. Neisseria gonorrhoeae B. Staphylococcus epidermidis C. Escherichia coli D. Proteus mirabilis E. Staphylococcus aureus</p>
20.	<p>A 69 year old woman with a medical history of rheumatoid arthritis for 25 years presents with left shoulder pain and swelling for 3 days. She has a low grade fever. On examination, there is decreased range of motion of the left shoulder joint and movement elicits pain. She takes regular low dose steroids for the past year to manage her flare of rheumatoid arthritis. She has no known drug allergies. Joint aspiration has been sent for microscopy and culture. What is the SINGLE most appropriate management?</p> <p>A. Wait for results of culture prior to starting antibiotic therapy B. Intravenous flucloxacillin C. Oral flucloxacillin D. Intravenous clindamycin E. Perform repeated percutaneous aspiration</p>
21.	<p>A 55 year old lady with a medical history of hypertension and rheumatoid arthritis presents with an acutely hot, swollen, and tender right knee joint. There is pain on movement and there is decreased passive and active range of motion. What is the SINGLE most appropriate investigation to perform?</p> <p>A. X-ray of right knee joint B. Culture and sensitivity of joint aspirate C. Ultrasound D. Magnetic resonance imaging E. Computed tomography</p>
22.	<p>A 60 year old man presented with a spontaneous painful swelling of his right knee which appears hot and very tender on touching. The swelling became worse over the last few days. About a week ago, he had an inguinal hernia repaired as a day case. His regular medications include Ramipril 10mg daily, Bendroflumethiazide 2.5mg daily and Glyceryl trinitrate tablets when required. He is afebrile on examination. What is the SINGLE best method for confirming the diagnosis?</p> <p>A. Joint aspirate for microscopy</p>



	<p>B. Blood culture C. D-dimer D. X-ray of knee E. Serum uric acid levels</p>
23.	<p>A 63 year old man presents with muscle weakness. He finds it difficult to walk for long periods of time or climb stairs. Activities such as rising from a seated position is difficult. He also finds difficulty in swallowing foods. His blood results show:</p> <p>Alkaline phosphatase (ALP) 149 U/L Aspartate transaminase (AST) 37 U/L Alanine transferase (ALT) 44 U/L Creatine kinase 440 U/L Erythrocyte sedimentation rate (ESR) 16 mm/h</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Polymyositis B. Polymyalgia rheumatic C. Muscular dystrophy D. Oesophageal carcinoma E. Osteoarthritis</p>
24.	<p>A 38 year old man recently had an appendectomy and has now developed severe pain in his right big toe. He is noted to consume an average of 30 units of alcohol in a week. On examination, the joint of the right big toe is red and swollen. What is the SINGLE most likely diagnosis?</p> <p>A. Rhabdomyosarcoma B. Osteoarthritis C. Gout D. Pseudogout E. Arthritis</p>
25.	<p>A 33 year old woman comes in with a 6 month history of painless bilateral swelling of the face and a mild grade fever. The swelling has been progressively increasing in size. She also complains of having worsening symptoms of dry mouth. On a routine chest X-ray, she is found to have bilateral perihilar lymphadenopathy. What is the SINGLE most likely diagnosis?</p> <p>A. Chronic sialadenitis B. Carcinoma of salivary gland C. Lofgren syndrome D. Adenoid cystic carcinoma E. Mikulicz's syndrome</p>
26.	<p>A 29 year old man has been having chronic diarrhoea for the past year. He also complains of redness and pain in his right eye. He also has lower back pain and he experiences stiffness and pain which</p>



	<p>wakes him during early hours of the morning. On examination he is seen to have aphthous ulcers and perianal skin tags. His blood tests show:</p> <p>Haemoglobin 100 g/L White cell count $15 \times 10^9/L$ CRP 43 mg/L Erythrocyte sedimentation rate (ESR) 22</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Systemic lupus erythematosus B. Reactive arthritis C. Gout D. Psoriatic arthritis E. Seronegative spondyloarthropathy</p>
27.	<p>A 47 year old woman has pallor followed by bluish discolouration of her hands when she goes out into the cold. She has been suffering with this discolouration for the past 3 years. She has symmetrical peripheral arthropathy which has been present for the last year. She also has small pink and red spots on her lips and her fingertips. What is the SINGLE most likely diagnosis?</p> <p>A. Rheumatoid arthritis B. Osteosarcoma C. Limited systemic sclerosis D. Diffuse systemic sclerosis E. Systemic lupus erythematosus</p>



UROLOGY

SAMPLE



1.	<p>A 72 year old man brought to the emergency department with onset of paraplegia following a trivial fall. He was treated for prostatic malignancy in the past. What is the SINGLE most likely diagnosis?</p> <p>A. Paget's disease B. Osteoporotic fracture of vertebrae C. Secondary metastasis D. Multiple myeloma E. Spondylosis</p>
2.	<p>A 70 year old man with a history of prostatic cancer has severe acute back pain waking him up at night for the past 4 weeks. What is the SINGLE most appropriate investigation?</p> <p>A. MRI spine B. Isotope bone scan C. DEXA scan D. Serum ALP concentration E. Serum calcium concentration</p>
3.	<p>A 25 year old woman presents with urinary frequency, suprapubic pain and dysuria. She has a temperature of 38.5°C. Nitrites and leucocytes are positive on a dipstick. What is the SINGLE most likely diagnosis?</p> <p>A. Schistosomiasis B. Kidney trauma C. Ureteric calculus D. Bladder calculi E. Cystitis</p>
4.	<p>A 33 year old man presents with bilateral flank pain. He is later diagnosed to have bilateral kidney stones. His medical history includes sarcoidosis. What is the SINGLE most likely cause that attributed to the development of his urinary stones?</p> <p>A. Hypercalcemia B. Hyperuricemia C. Diet D. Recurrent urinary tract infection E. Hyperparathyroidism</p>
5.	<p>A 35 year old man with painless left testicular enlargement for the past 6 months which is increasing in size. On examination, the left testicle is noted to be 3 times the size of the right testicle. There is no tenderness or redness. What is the SINGLE most likely diagnosis?</p> <p>A. Testicular cancer B. Hydrocele C. Epididymal cyst D. Epididymo-orchitis E. Scrotal haematoma</p>



6.	<p>A 61 year old man, known smoker, comes to the hospital with complaints of painless frank haematuria. He has been worried about his loss of weight and reduced general activity. Urine microscopy shows red cells but no white cells. What is the SINGLE most diagnostic test?</p> <p>A. Urine culture B. Intravenous urogram C. Transrectal ultrasound and biopsy D. Cystoscopy with biopsy E. Ultrasound of the Kidneys, Ureters & Bladder</p>
7.	<p>A 39 year old coal miner was recently diagnosed with bladder cancer. He is a smoker and has a family history of bladder cancer. He also has been diagnosed with benign prostatic hyperplasia. Which SINGLE risk factor is likely to be associated with transitional cell carcinoma of the bladder?</p> <p>A. Family history B. Smoking C. Exposure to coal mine D. Benign prostatic hyperplasia E. Age</p>
8.	<p>A 26 year old sexually active male presents with severe pain in the left scrotum lasting for 4 hours. He complains of a past history with similar episodes of pain over the past 2 years but has never sought treatment before. His scrotum is extremely tender and examination is impossible because of the pain. What is the SINGLE best management for this patient?</p> <p>A. Send home with antibiotic cover B. Ultrasound of scrotum C. Urgent surgical exploration D. Urethral swab E. Midstream urine culture and sensitivity</p>
9.	<p>A 78 year old man with a history of prostate adenocarcinoma has loin pain, anuria, and symptoms of acute kidney injury. What is the SINGLE most appropriate investigation?</p> <p>A. MRI spine B. Radionuclide bone scan C. Transrectal Ultrasound D. Ultrasound KUB E. Abdominal X-ray</p>
10.	<p>A 79 year old African-Caribbean man comes in complaining of difficulty in passing urine. He has a weak stream, and says that he is unable to completely empty his bladder. 3 months ago he suffered from a urinary tract infection. He also complains of back pain and suprapubic pain. He has lost significant weight and looks cachexic. What is the SINGLE most likely diagnosis?</p> <p>A. Benign prostatic hyperplasia B. Renal cell carcinoma C. Bladder stones D. Prostate cancer E. Urinary tract infection</p>



11.	<p>A 31 year old presents with sudden onset of flank pain, nausea and vomiting. He recently passed a 4mm stone in his urine. Urine microscopy reveals microscopic haematuria. On ultrasound, a 3mm stone is found in the renal pelvis. What is the SINGLE most appropriate management?</p> <p>A. Extracorporeal shock-wave lithotripsy B. Percutaneous nephrolithotomy C. Open Surgery D. Advise to increase fluid intake E. Urethral catheterisation</p>
12.	<p>A 16 year old boy complains of having a heavy feeling in the scrotal area. On physical examination, a soft painless swelling in the left scrotum is noticed. The swelling appears like a 'bag of worms' and is less obvious when he is lying supine. What is the SINGLE most appropriate investigation?</p> <p>A. Serum AFP and beta HCG levels B. Exploratory surgery C. Biopsy D. Pen torch transillumination E. Ultrasound Doppler</p>
13.	<p>A 15 year old boy presents with testicular pain for 3 days. The pain had a gradual onset. There is no history of trauma. On examination, his right hemi-scrotum is tender. He has a temperature of 38.5°C. What is the SINGLE most appropriate management?</p> <p>A. Give antibiotics B. Give analgesia C. Reassure D. Blood culture E. Exploratory surgery</p>
14.	<p>A 65 year old man presents with frank haematuria. He is afebrile and has no other urinary symptoms. There was no history of trauma and he has no relevant medical history. He looks well. Urinary cultures are negative. What is the SINGLE most appropriate investigation that would lead to a diagnosis?</p> <p>A. Intravenous urograms (IVU) B. Ultrasound abdomen C. Cystoscopy D. Urinary biomarkers E. Transrectal ultrasound and biopsy</p>
15.	<p>A 79 year old man who is being treated with GnRH antagonist for a diagnosed prostate adenocarcinoma attends the clinic. What is the SINGLE most appropriate follow up investigation?</p> <p>A. Serum AFP B. Serum PSA C. Serum acid phosphatase concentration</p>



	D. Serum ALP isoenzyme concentration E. Prostate cancer antigen 3
16.	<p>A 22 year old sexually active male came with a 2 day history of fever with pain in the scrotal area. There is no history of trauma. On examination, the scrotal skin is red and tender. What is the SINGLE most likely diagnosis?</p> <p>A. Testicular torsion B. Varicocele C. Inguinal hernia D. Epididymo-orchitis E. Mumps</p>
17.	<p>A 44 year old man presents with a scrotal swelling. The swelling is cystic and is non-tender. It is located in the upper pole of the posterior part of the testes. What is SINGLE most likely diagnosis?</p> <p>A. Epididymal cyst B. Testicular cancer C. Hydrocele D. Varicocele E. Testicular torsion</p>
18.	<p>A 38 year old man has severe loin pain with nausea and vomiting. Ultrasound shows right hydronephrosis. A non-enhanced computerised tomography scan reveals a 3.2 cm in diameter stone at the level of the minor calyx. What is the SINGLE most appropriate management?</p> <p>A. Percutaneous nephrolithotomy B. Extracorporeal shock-wave lithotripsy C. Increase fluid intake D. Urethral catheterisation E. Stenting</p>
19.	<p>A 14 year old boy presents with a 3 hour history of severe left testicular pain. He has no urinary symptoms and is otherwise well. On examination, the right testes looks normal but the left hemiscrotum is swollen and acutely tender. The pain is not eased by elevation of the testes. What is the SINGLE most appropriate initial step?</p> <p>A. Mid stream urine B. Ultrasound scan of the testes C. Urethral Swab D. Exploratory surgery E. Computed tomography scan of the testes</p>
20.	<p>A 57 year old chronic smoker reports three instances in the past 2 weeks when he has had painless, gross, total hematuria. Intravenous urograms (IVU) was done and was reported as normal. In the last month he has been treated for irritative voiding symptoms, but has not been febrile, and urinary cultures have been negative. What is the SINGLE most appropriate next step?</p>



	<p>A. US Abdomen B. Flexible cystoscopy C. MRI D. Nuclear imaging E. CT-KUB</p>
21.	<p>A 32 year old woman presents with severe intermittent right sided abdominal pain radiating to the groin which has lasted for 3 hours. She is writhing in pain and vomited twice in the last hour. WBC are $14 \times 10^9/L$ and CRP is 83 mg/l. A urine HCG was negative. What is the SINGLE most likely cause of her abdominal pain?</p> <p>A. Appendicitis B. Ruptured ectopic pregnancy C. Salpingitis D. Ureteric colic E. Strangulated hernia</p>
22.	<p>A 77 year old African-Caribbean man comes in complaining of difficulty in passing urine. He has a weak stream, and says that he is unable to completely empty his bladder. He also has lower back pain and has lost 10 kg in the last 3 months. An ultrasound shows bilateral hydronephrosis. What is the SINGLE most likely diagnosis?</p> <p>A. Benign prostatic hyperplasia B. Renal cell carcinoma C. Bladder stones D. Prostate cancer E. Urinary tract infection</p>
23.	<p>A 22 year old footballer was struck in the groin by a kick. He presents with severe pain and mild swelling in the scrotum. The pain is not eased by elevation of the testes. What is the SINGLE most appropriate next course of action?</p> <p>A. Ultrasound scan of the testes B. Urethral Swab C. Exploratory surgery D. IV fluids E. Antibiotics</p>
24.	<p>A 15 year old boy was woken up from sleep with severe, sudden pain in the testis. There was no history of trauma. On examination, the testis is tender on palpation. He is afebrile. Analgesia has been given. What is the SINGLE most appropriate next step in management?</p> <p>A. Urethral Swab B. Antibiotics C. Refer urgently to a surgeon D. Reassurance</p>



	E. Discharge with analgesics
25.	<p>A 25 year old man has a painful right testis, lower abdominal pain, vomiting and nausea. The testis is swollen, hot, and extremely tender. The onset of pain was dramatic and sudden. He complains of some pain on passing urine. What is the SINGLE most appropriate next course of action?</p> <p>A. Mid stream urine B. Ultrasound scan of the testes C. Urethral Swab D. Urgent surgery E. Antibiotics</p>
26.	<p>A 74 year old lady who has had a stroke in the past has an indwelling catheter for 10 months. She presents with bluish-purple discolouration of the catheter bag. What is the SINGLE most likely explanation for this?</p> <p>A. Normal change due to long use B. Catheter degradation C. Acidic urine D. Alkaline urine E. Bacterial colonization of the urinary tract</p>
27.	<p>A 49 year old man presents with severe colicky pain from his right flank radiating to his groin associated with nausea and vomiting. He subsequently develops rigors and a tender abdomen. His urinalysis reveals trace blood. What is the SINGLE next best investigation?</p> <p>A. Ultrasound abdomen B. Kidneys, ureters, and bladder X-ray C. Colonoscopy D. Intravenous pyelogram E. Laparoscopy</p>
28.	<p>A 46 year old man presents to clinic with a scrotal swelling. The swelling is cystic and is non-tender. It developed slowly and it lies above and behind the testis. What is the SINGLE most appropriate diagnostic test?</p> <p>A. Ultrasound B. Pen torch C. Exploratory surgery D. Biopsy E. Serum AFP and β HCG</p>
29.	<p>A 67 year old man has with a diagnosis of benign prostatic hyperplasia undergoes a transurethral resection of the prostate (TURP). What SINGLE most likely electrolyte abnormality should be expected after the procedure?</p> <p>A. Hypokalemia</p>



	<p>B. Hypocalcemia C. Hyperkalemia D. Hyponatremia E. Hypernatremia</p>
30.	<p>A 62 year old man has been waking up in the middle of the night to use the bathroom. He complains of having difficulty in initiating micturition and dribbling afterwards. A diagnosis of benign prostatic hyperplasia was made after a transrectal ultrasound guided biopsy was performed. He is due for a transurethral resection of the prostate (TURP) later this evening. What SINGLE most likely electrolyte abnormality should be expected after the procedure?</p> <p>A. Hypokalemia B. Hypocalcemia C. Hyperkalemia D. Hyponatremia E. Hypernatremia</p>
31.	<p>A 20 year old women 6 hours post-lower segment Caesarean section has not passed urine since her operation. She denies any urinary symptoms preoperatively. She appears unwell. She has a temperature of 37°5C, a pulse of 110 beats/minute, a blood pressure of 94/60 mmHg and a respiratory rate of 23 breaths/minute. Her abdomen is distended with tenderness in the left flank and suprapubic region. Bowel sounds are not audible. What is the SINGLE most likely postoperative complication?</p> <p>A. Urinary tract infection B. Urinary tract injury C. Pleurisy D. Pleurisy E. Paralytic ileus</p>
32.	<p>An 80 year old man has the sensation of incomplete emptying of his bladder. He is going to the toilet more often than usual and is having terminal dribbling. He has lost 9 kg in the last 3 months and recently suffers from pelvic pain. What is the SINGLE most likely diagnosis?</p> <p>A. Benign prostatic hyperplasia B. Renal cell carcinoma C. Bladder stones D. Prostate cancer E. Bladder cancer</p>
33.	<p>A 13 year old boy develops acute pain in his right testicle while playing football. Examination reveals a very tender mass in the right scrotum with reddening of scrotal skin. Lifting the testis causes more pain. What is the SINGLE most likely diagnosis?</p> <p>A. Mumps B. Testicular tumour C. Scrotal abscess D. Epididymo-orchitis E. Testicular torsion</p>



34.	<p>A 75 year old man has urinary symptoms of hesitancy, frequency and nocturia. A digital rectal examination reveals a large, irregular, hard asymmetric prostate gland. What is the SINGLE most appropriate investigation that will help with the diagnosis?</p> <p>A. CA 125 B. CA 153 C. CA 199 D. CEA E. PSA</p>
35.	<p>An 85 year old war veteran complains of loss of appetite and says that he has lost weight over the past few months. He says that he has passed some blood in his urine, however, there was no pain. A recent report shows that PSA is 9.5ng/ml. What is the SINGLE most likely diagnosis?</p> <p>A. Benign prostatic hyperplasia B. Renal cell carcinoma C. Bladder stones D. Prostate cancer E. Urinary tract infection</p>
36.	<p>A 15 year old boy complains of having a heavy feeling in the scrotal area. On physical examination, a soft painless swelling in the left scrotum is noticed. The swelling appears blue in colour and is less obvious when he is lying supine. What is the SINGLE most appropriate management?</p> <p>A. Analgesia B. Antibiotic C. Biopsy D. Immediate surgery E. Reassurance</p>
37.	<p>An 81 year old afro-caribbean man presents with pain in his lower back and hip. He complains of waking up in the middle of the night to go to the washroom and often he wets himself before reaching the toilet. He also has to urinate much more frequent than in the past and has terminal dribbling. What is the SINGLE most likely underlying diagnosis?</p> <p>A. Benign prostatic hyperplasia B. Prostatitis C. Bladder carcinoma D. Prostate carcinoma E. Urinary tract infection</p>
38.	<p>60 year old patient had a cystoscopy for painless, gross hematuria and pathology revealed transitional cell carcinoma of the bladder. He has smoked a pack a day for the last 15 years and currently works in a coal factory. What is the SINGLE greatest risk factor for transitional cell carcinoma in this patient?</p> <p>A. Coal dust exposure</p>



	<p>B. Smoking C. Family history D. Lung cancer E. Anatomical defect</p>
39.	<p>A 77 year old man has a long term indwelling urinary catheter. A recent catheter urine sample was sent for culture and sensitivity and was found to have heavy growth of Escherichia coli. What is the SINGLE most appropriate management?</p> <p>A. Reassure the patient B. Prescription for antibiotics C. Bladder washout D. Repeat midstream specimen of urine in 2 weeks E. Change the urinary catheter</p>
40.	<p>A 75 year old man comes in complaining of difficulty in passing urine, poor stream and dribbling at the end of voiding. He has also notice significant weight loss and feels tired all the time. An ultrasound shows bilateral hydronephrosis. What is the SINGLE most likely cause of these findings?</p> <p>A. Benign prostatic hyperplasia B. Renal cell carcinoma C. Bladder stones D. Prostate cancer E. Urinary tract infection</p>
41.	<p>A 47 year old man comes to the GP with swelling on his left groin which disappears on lying down. The swelling was bluish in colour and felt like a bag of worms. He also complains of a mass in the left loin along with haematuria occasionally. What could be the possible diagnosis?</p> <p>A. Left sided renal cell carcinoma B. Varicosity 2nd to liver disease C. Testicular tumor D. Urinary tract infection E. Inferior vena cava obstruction</p>
42.	<p>A 79 year old African Americans male complains of thirst and fatigue. He has symptoms of frequency, urgency and terminal dribbling. He has lost 8 kg over the last 3 months. Laboratory findings show a calcium of 3.0 mmol/L and haemoglobin of 90g/L. What is the SINGLE most likely underlying diagnosis?</p> <p>A. Benign Prostatic Hyperplasia B. Prostate carcinoma C. Chronic pyelonephritis D. Diabetes Mellitus E. Osteosarcoma</p>



43.	<p>A 58 year old man has renal colic for the past 12 hours. In the last two years, he has presented with three episodes of acute onset of pain in his right knee. What is the SINGLE most likely cause of his renal colic?</p> <p>A. Systemic lupus erythematosus associated glomerulonephritis B. Hypercalcemia C. Chlamydia trachomatis D. Hyperuricemia E. Hyperoxaluria</p>
44.	<p>A 42 year old woman has recently returned from working in the Middle East. She has episodes of loin pain, urinary frequency, dysuria and has passed a urinary stone in the past. She plans to return to the Middle East in a month's time. What is the SINGLE best advice to give to prevent recurrent stone formation?</p> <p>A. Drink less dairy products B. Increase fibre in diet C. Increase fluid intake D. Decrease consumption of calcium related products E. Decrease protein in diet</p>
45.	<p>A 47 year old woman has had 3 urinary tract infections confirmed with urine culture in the past 8 months. She has been started on cefalexin for prophylaxis. A kidney ureter bladder X-ray has been performed and no renal stones were identified. Ultrasound of the kidneys and ureter show no evidence of hydronephrosis or renal stones. Post voiding residual volume is minimal on a bladder ultrasound. What is the SINGLE most appropriate investigation?</p> <p>A. Cystoscopy B. High vaginal swab C. Low vaginal swab D. Repeat MSU culture and sensitivity E. Dimercaptosuccinic acid (DMSA) scanning</p>
46.	<p>A 33 year old woman complains of having urinary urgency for the past year. She urinates more than 8 times a day. She gives a history of having suprapubic pain if her bladder is full, resulting in the need to urinate frequently as suprapubic pain is relieved by voiding. A urine culture was sent and results have come back negative. On cystoscopy, Hunner's ulcers were seen on the bladder wall. What is the SINGLE most likely diagnosis?</p> <p>A. Endometriosis B. Sexually transmitted infection C. Overactive bladder D. Bladder cancer E. Interstitial cystitis</p>



VASCULAR SURGERY

SAMPLE



1)	<p>A 60 year old presents with non-healing ulcers on his calves and a cramp-like pain in the calves relieved by rest. His past medical history includes hypertension, diabetes, and hypercholesterolemia. He also smokes 15 cigarettes a day. Physical examination shows cold extremities absent distal pulses. Which SINGLE advice is unlikely to prevent disease progression?</p> <p>A. Quit smoking B. Treat hypertension C. Treat high cholesterol D. Exercise E. Omega 3 oils</p>
2)	<p>A 62 year old man has a painless swelling on his groin. On examination, the mass lies below the midpoint of the right inguinal ligament and is pulsatile. What is the SINGLE most likely diagnosis?</p> <p>A. Direct inguinal hernia B. Indirect inguinal hernia C. Femoral hernia D. Saphena varix E. Femoral artery aneurysm</p>
3)	<p>A 40 year old heavy smoker presents with pain in the calves relieved by rest. These symptoms have been worsening over the last few months. He has a history of hypertension which is well controlled with medication. His distal pulses are difficult to palpate. What is the SINGLE most likely diagnosis?</p> <p>A. Acute limb ischaemia B. Diabetes Mellitus C. Buerger's disease D. Deep vein thrombosis E. Varicose veins</p>
4)	<p>A 76 year old man suddenly collapsed and died. At post mortem exam, a retroperitoneal haematoma was found due to ruptured abdominal aortic aneurysm. What is the SINGLE most likely underlying aetiology of the aortic aneurysm?</p> <p>A. Atheroma B. Cystic medial necrosis C. Marfan's syndrome D. Polyarteritis nodosa E. Syphilis</p>
5)	<p>A 27 year old man complains of headaches, nose bleeds and pain in the lower limbs on exertion. A radio-femoral delay was noted on examination. His legs are cold and his femoral pulse is difficult to</p>



	<p>feel. Auscultation reveals a systolic murmur heard in the left infraclavicular area. What is the SINGLE most likely diagnosis?</p> <p>A. Tetralogy of Fallot (TOF) B. Atrial septal defect (ASD) C. Ventricular Septal Defect (VSD) D. Patent ductus arteriosus E. Coarctation of the aorta</p>
6)	<p>A 68 year old man gets repeated attacks of loss of consciousness and transient ischaemic attacks (TIA). What is the SINGLE most likely cause for his symptoms?</p> <p>A. Atrial fibrillation B. Mitral stenosis C. Aortic stenosis D. Hypertrophic Obstructive Cardiomyopathy E. Carotid artery stenosis</p>

SAMPLE



7)	<p>A 55 year old smoker presents to the emergency department with complaint of severe left leg and foot pain that began earlier in the day. The pain spreads to the level just above the the inguinal ligament. His past medical history includes hypertension. On examination, he has atrophic skin changes in his left leg and his left limb is cold to touch. He has no palpable pulses in the left lower extremity. Gross motor and sensory functions were intact in the symptomatic leg and foot. What is the SINGLE most likely occluded artery?</p> <p>A. Left femoro-popliteal artery B. Left common iliac artery C. Aortoiliac artery D. Left femoral artery E. Left deep femoral artery</p>
8)	<p>A 60 year old diabetic presents with non-healing ulcers on his calves and a cramp-like pain in the calves relieved by rest. He does not smoke but has a history of hypertension which is well controlled with medication. Physical examination shows cold extremities with lack of hair around the ankles and absent distal pulses. What is the SINGLE most likely diagnosis?</p> <p>A. Acute limb ischaemia B. Peripheral arterial disease (PAD) C. Buerger's disease D. Deep vein thrombosis E. Varicose veins</p>
9)	<p>A 38 year old woman presents with a blood pressure of 160/90 mmHg. She is otherwise asymptomatic. Ultrasound scan of kidneys reveal kidneys of equally reduced size with smooth borders and normal pelvicalyceal system. What is the SINGLE most likely cause of her hypertension?</p> <p>A. Chronic glomerulonephritis B. Chronic pyelonephritis C. Bilateral renal artery stenosis D. Essential hypertension E. Polycystic kidney disease</p>



10)	<p>A 44 year old man has sudden severe crushing chest pain radiating to both shoulders and his back. The pain is accompanied by shortness of breath. He is sweating profusely. There was no history of trauma. Examination shows cold peripheries. He is noted to have disproportionately long, slender limbs and long fingers and toes. What is the SINGLE most appropriate diagnosis?</p> <p>A. Myocardial infarction B. Thoracic aortic dissection C. Pulmonary embolism D. Oesophageal perforation E. Motor neuron disease</p>
11)	<p>A 49 year old man presents with a BP of 160/95 mmHg. He is otherwise asymptomatic. His renal function declined severely after starting ACE inhibitors. What is the SINGLE most likely cause of his hypertension?</p> <p>A. Chronic glomerulonephritis B. Pheochromocytoma C. Bilateral renal artery stenosis D. Essential hypertension E. Polycystic kidney disease</p>
12)	<p>A 55 year old man comes to the emergency department with severe abdominal pain and lower back pain. He has a history of a pulsatile swelling in the abdomen. He has a pulse rate of 125 beats/minute and a blood pressure of 70/40 mmHg. What is the SINGLE most appropriate initial management?</p> <p>A. Urgent abdominal computed tomography B. Urgent abdominal ultrasound C. Intravenous fluids 0.9% normal saline to bring systolic blood pressure to 90 mmHg D. Intravenous fluids 0.9% normal saline to bring systolic blood pressure to 120 mmHg E. Dopamine intramuscular injection</p>

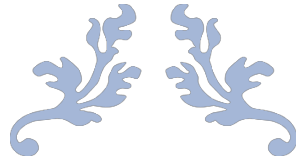


13)	<p>A 60 year old man has sudden severe chest pain radiating to both shoulders and accompanied by shortness of breath. There was no history of trauma. His medical history includes hypertension. Examination shows cold peripheries and paraplegia. What is the SINGLE most appropriate diagnosis?</p> <p>A. Myocardial infarction B. Thoracic aortic dissection C. Pulmonary embolism D. Oesophageal perforation E. Motor neuron disease</p>
14)	<p>A 28 year old construction worker was admitted for pain in his right calf while at work which has been increasing over the last 3 months. There is no history of hypertension or diabetes but he is a smoker. On examination, loss of posterior tibial and dorsalis pedis pulsation was noticed along with a non-healing ulcer at the base of the right 1st metacarpophalangeal joint. What is the SINGLE most probable diagnosis?</p> <p>A. Thromboangiitis obliterans B. Sciatica C. Deep venous thrombosis D. Baker's cyst E. Embolus</p>
15)	<p>A 70 year old man presents with an acutely painful, pale paralysed and pulseless left leg. He is noted to have an atrial fibrillation that was diagnosed recently. What is the SINGLE most likely diagnosis?</p> <p>A. Peripheral vascular disease B. Cardiovascular syphilis C. Buerger's disease D. Aortic dissection E. Acute limb ischaemia</p>



16)	<p>A 78 year old man has a painless sudden collapse. His pulse is 120 beats/minute, blood pressure of 70/40 mmHg. Examination reveals a mottled skin of the lower body and a pulsatile abdominal mass. What is the SINGLE most likely diagnosis?</p> <p>A. Aortic aneurysm B. Mesenteric cyst C. Umbilical hernia D. Ureteric colic E. Gastrointestinal perforation</p>
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SAMPLE



PLAB DOABLE

Answers & Explanations



SAMPLE



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ANATOMY



1)	<p>A 37-year-old man has a non-healing ulcer on the skin of the right medial malleolus. Which SINGLE lymph node is likely to be involved?</p> <p>A. Axillary lymph nodes B. Pre-aortic lymph node C. Aortic lymph node D. Inguinal lymph node E. External iliac lymph nodes</p> <p><i>The skin at the medial malleolus drains into inguinal lymph nodes.</i></p>
2)	<p>A 35-year-old man sat cross-legged for 30 minutes after which he found himself unable to dorsiflex his left foot and had loss of sensation in the web space between the big toe and the second toe. What is the SINGLE most likely anatomical structure to be affected?</p> <p>A. Femoral nerve B. Sural nerve C. Sciatic nerve D. Deep peroneal nerve E. Superficial peroneal nerve</p> <p><i>Deep peroneal nerve (Deep fibular nerve)</i></p> <p><u>Motor functions:</u> <i>The deep peroneal nerve innervates the muscles in the anterior compartment of the leg which are responsible for dorsiflexion of the foot at the ankle joint.</i></p> <p><u>Sensory functions:</u> <i>The deep peroneal nerve innervates the webbed space of skin between the great toe (hallux) and the second toe.</i></p> <p><u>Clinical relevance:</u> <i>The deep peroneal nerve can become entrapped or compressed during its course through the anterior compartment of the leg. This causes paralysis of the muscles in the anterior compartment of the leg, and so a patient loses the ability to dorsiflex the foot. With unopposed plantarflexion, their foot drops.</i></p> <p><i>There are two main reasons why the deep fibular nerve could be compressed.</i></p> <ul style="list-style-type: none">- <i>The first is that the anterior leg muscles have been excessively used and so are compressing the nerve within the anterior compartment. The patient will experience pain in the anterior leg.</i>- <i>The other common cause is tight-fitting shoes, compressing the nerve beneath the extensor retinaculum. This commonly occurs with wearing tight ski boots (referred to as ski boot syndrome). The patient will experience pain in the dorsum of the foot.</i>



3)	<p>Which anatomical structure is located at the level of the first lumbar vertebra (L1)?</p> <p>A. Mcburney's point B. Stellate ganglion C. Deep inguinal ring D. Xiphoid process E. Transpyloric plane</p> <p><i>The first lumbar vertebra is level with the anterior end of the ninth rib. This level is also called the important transpyloric plane, since the pylorus of the stomach is at this level. Other important structures are also located at this level, they include; fundus of the gall bladder, coeliac trunk, superior mesenteric artery, termination of spinal cord, and hilla of kidneys.</i></p> <p><i>The Transpyloric plane, also known as Addison's Plane, is an upper transverse line, located halfway between the jugular notch and the upper border of the pubic symphysis. The plane in most cases cuts through the pylorus of the stomach, the tips of the ninth costal cartilages and the lower border of the first lumbar vertebra.</i></p>
4)	<p>A 23-year-old man is having difficulty in speaking following a stab wound to the right of his neck. On tongue protrusion test, the tip of tongue is deviated to the right. Which of the following nerve is the SINGLE most likely to be affected in this patient?</p> <p>A. Facial nerve B. Hypoglossal nerve C. Vagus nerve D. Trigeminal nerve E. Glossopharyngeal nerve</p> <p><i>The hypoglossal nerve is the twelfth cranial nerve XII, and innervates muscles of the tongue. The following are the common causes of this nerve injury:</i></p> <p><i>a. Lower motor neuron lesions- Polio, syringomyelia. b. Stroke c. Bulbar Palsy d. Neck trauma. e. Surgery- Carotid endarterectomy.</i></p> <p><i>Symptoms often show deviation of the tongue towards the paralyzed side when it is stuck out. This is because of the weaker genioglossal muscle.</i></p> <p><i>Other lesions: Facial nerve lesion lead to facial weakness and loss of taste sensation of anterior two third of</i></p>



	<p>tongue.</p> <p><i>Vagus nerve lesion results in weak cough, vocal cord paralysis with dysphonia. There is also parasympathetic loss of innervation to respiratory, Gastrointestinal and Cardiovascular systems.</i></p> <p><i>Trigeminal nerve lesion presents with signs depending upon the level of lesion. Usually there is weakness of muscles of mastication, Jaw deviates to side of weak pterygoid muscle and there is also loss sensation on the face.</i></p> <p><i>Glossopharyngeal nerve lesion presents with loss of gag reflex, loss of taste sensation from posterior third of the tongue, loss of general sensation from posterior pharynx, tonsils and soft palate.</i></p>
5)	<p>A 32-year-old woman has weakness of both her hands after a fall down a flight of stairs. An X-ray was ordered. Which is the SINGLE lowest vertebrae that needs to be seen in the cervical X-ray to help diagnose the injury?</p> <p>A. C4/C5 B. C5/C6 C. C6/C7 D. C7/T1 E. C8/T1</p> <p><i>Hand weakness involves either median nerve which has contributions from roots C5-T1 or ulnar nerve which originates from the C8-T1 nerve roots.</i></p> <p><i>Remember, a C8 vertebrae does not exist and so the option for C8/T1 is clearly wrong.</i></p> <p><i>There are seven cervical vertebrae (C1-C7) and a total of eight cervical nerves C1- C8. All cervical nerves except C8 emerge above their corresponding vertebrae, while the C8 nerve emerges below the C7 vertebra that is between C7 and T1 vertebrae.</i></p> <p><i>When you request for a cervical X-ray, you would like the film to extend up to C7/T1 as so you would be able to see the cervical vertebrae (C1-C7) and all the cervical nerves (C1-C8).</i></p>
6)	<p>Which artery descends into the anterior interventricular groove?</p> <p>A. Acute marginal branch B. Left anterior descending artery C. Septal branches D. Circumflex artery E. Right coronary artery</p>



	<p><i>The left anterior descending (LAD, interventricular) artery appears to be a direct continuation of the left coronary artery which descends into the anterior interventricular groove.</i></p>
7)	<p>What important landmark is placed at the 5th intercostal space at the anterior axillary line?</p> <p>A. Apex beat B. Chest drain insertion C. Stellate ganglion D. Transpyloric plane E. Vena cava opening into the diaphragm</p> <p><i>Chest drain Insertion Technique</i></p> <p><i>Chest insertion should be performed ideally within “safe triangle”</i></p> <p><i>‘Safe triangle’ for chest drain insertion, bounded anteriorly by pectoralis major, posteriorly by latissimus dorsi, inferiorly by the fifth intercostal space, and superiorly by the axilla.</i></p> <p><i>More specifically, the tube is inserted into the 5th intercostal space slightly anterior to the mid axillary line.</i></p> <p><i>By inserting at the safe triangle, we avoid major vessels and muscles.</i></p> <p><i>It is important to note that the intercostal vessels and nerves run below the inferior border of the ribs. Thus, the drain track should be directed over the top of the lower rib to avoid the intercostal vessels lying below each rib.</i></p>
8)	<p>A 73-year-old woman with rheumatoid arthritis is unable to extend the fingers of her right hand at the metacarpophalangeal joint and interphalangeal joints following a fall. What is the SINGLE most likely tendon to have been damaged?</p> <p>A. Extensor carpi radialis B. Extensor carpi ulnaris C. Extensor digitorum D. Extensor indicis E. Flexor digitorum profundus</p> <p><i>The extensor digitorum communis extends the phalanges, then the wrist, and finally the elbow. It tends to separate the fingers as it extends them.</i></p>



- 9) A 24-year-old man is hit by a baton just above the knee on his right leg. This is followed by loss of motor control of the leg. His foot drops and is unable to dorsiflex his foot. There is loss of sensation over the front and outer half of the leg and dorsum of the foot. What is the SINGLE most likely anatomical structure to be affected?

- A. Sural nerve
- B. Common peroneal nerve**
- C. Tibia nerve
- D. Lateral plantar nerve
- E. Medial plantar nerve

This is actually called a peroneal strike. A peroneal strike is a temporarily disabling blow to the common peroneal nerve of the leg, just above the knee which causes a temporary loss of motor control of the leg, accompanied by numbness and a painful tingling sensation from the point of impact all the way down the leg, usually lasting anywhere from 30 seconds to 5 minutes in duration.

Common peroneal nerve :

The common peroneal nerve innervates the short head of the biceps femoris muscle (part of the hamstring muscles, which flex at the knee). In addition, its terminal branches also provide innervation to muscles:

Motor Functions:

Superficial fibular nerve: Innervates the muscles of the lateral compartment of the leg. These muscles act to evert the foot.

Deep fibular nerve: Innervates the muscles of the anterior compartment of the leg. These muscles act to dorsiflex the foot, and extend the digits. It also innervates some intrinsic muscles of the foot.

If the common fibular nerve is damaged, the patient may lose the ability to dorsiflex and evert the foot, and extend the digits.

Sensory Functions:

There are two cutaneous branches that arise directly from the common fibular nerve as it moves over the lateral head of the gastrocnemius.

Sural communicating nerve: This nerve combines with a branch of the tibial nerve to form the sural nerve. The sural nerve innervates the skin over the lower posterolateral leg.

Lateral sural cutaneous nerve: Innervates the skin over the upper lateral leg.

In addition to these nerves, the terminal branches of the common fibular nerve also have a cutaneous function:

Superficial fibular nerve: Innervates the skin of the anterolateral leg, and dorsum of the foot



	<p><i>(except the skin between the first and second toes).</i></p> <p><i>Deep fibular nerve: Innervates the skin between the first and second toes.</i></p> <p><i>Tip: It may be hard to remember all the sensory and motor functions of the peroneal nerve. So just remember this keyword "foot drop". Whenever you see the word "foot drop" or "unable to dorsiflex" pick peroneal nerve.</i></p>
10)	<p>A 55-year-old man with rheumatoid arthritis struck his hand against a door. On examination, he could extend the interphalangeal joint of his right thumb but the metacarpophalangeal joint of the thumb remained flex. What is the SINGLE most likely tendon to have been damaged?</p> <p>A. Extensor carpi ulnaris B. Extensor digitorum C. Extensor indicis D. Extensor pollicis brevis E. Extensor pollicis longus</p> <p><i>The extensor pollicis brevis extends the thumb at the metacarpophalangeal joint.</i></p>
11)	<p>A 63-year-old lady with a BMI of 32 has pigmentation on her legs. Dilated veins could be seen on the lateral aspect of her ankle. Which SINGLE structure would be involved?</p> <p>A. Short saphenous vein B. Long saphenous vein C. Deep venous system D. Popliteal veins E. Sapheno-femoral junction</p> <p><i>The short saphenous vein is the only one which travels on the lateral aspect of the ankle.</i></p> <p><i>Note that the great or long saphenous vein travels on the medial aspect of the ankle.</i></p>
12)	<p>A 24-year-old patient was lying down on the operating table in a position with his arms hanging down for 3 hours. Soon after he woke up, he complains of numbness and weakness on his left hand and has a wrist drop. There is a loss of sensation over a small area between the dorsal aspect of 1st and 2nd metacarpals. What is the SINGLE most likely structure to be damaged?</p> <p>A. Radial nerve B. Median nerve C. Ulnar nerve D. Axillary nerve E. Suprascapular nerve</p>



Radial nerve (C5–T1)

Motor to

- *Extensor muscles (forearm, wrist, fingers, thumb)*
- *If damaged → leads to wrist drop*

Sensory to

- *If damaged → Sensory loss is variable, but always includes the dorsal aspect of the root of the thumb. Usually leads to loss to small area between the dorsal aspect of 1st and 2nd metacarpals*

It is important to remember the key phrases for nerve damage during PLAB. There are certain phrases you need to memorise to relate it to a specific nerve damages.

Examples:

- *Wrist drop → Radial nerve*
- *Foot drop → Either common peroneal nerve or sciatic nerve*
- *Claw hand → Ulnar nerve*
- *Paraesthesia of thumb, index and middle finger → Median nerve*
- *Numbness on superior aspect of upper arm just below shoulder joint → Axillary nerve*
- *Fibular neck fracture → Common peroneal nerve*
- *Femur neck fracture or Acetabular fractures → Sciatic nerve*
- *Fracture of humeral shaft → Likely Radial nerve*
- *Fracture of humeral neck → Likely Axillary nerve*
- *Monteggia fracture → Radial nerve*

Paraesthesia and impaired sensation in both hands (glove distribution) → Peripheral neuropathy

Features

- *Abdominal pain*
- *Polyuria, polydipsia, dehydration*



	<ul style="list-style-type: none">• <i>Kussmaul respiration (deep hyperventilation)</i>• <i>Acetone-smelling breath ('pear drops' smell)</i>
13)	<p>A 55-year-old man presents with an ulcer of the scrotum. Which is the SINGLE most likely lymph node involved in its lymphatic drainage?</p> <p>A. External iliac lymph node B. Pre-aortic lymph node C. Aortic lymph node D. Inguinal lymph node E. Cervical lymph node</p> <p><i>The superficial inguinal lymph nodes receive afferents lymphatic vessels from the scrotum.</i></p>
14)	<p>What is the SINGLE most likely anatomical structure to be pierced when inserting a drain in the mid-axillary line?</p> <p>A. External iliac muscle B. Linea alba C. Rectus sheath muscle D. Conjoined tendon E. Intercostal muscles</p> <p><i>SAMPLE</i></p> <p><u><i>Chest drain Insertion technique</i></u></p> <p><i>Chest insertion should be performed ideally within "safe triangle"</i></p> <p><i>'Safe triangle' for chest drain insertion, bounded anteriorly by pectoralis major, posteriorly by latissimus dorsi, inferiorly by the fifth intercostal space, and superiorly by the axilla.</i></p> <p><i>More specifically, the tube is inserted into the 5th intercostal space slightly anterior to the mid axillary line</i></p> <p><i>By inserting at the safe triangle, we avoid major vessels and muscles</i></p> <p><i>It is important to note that the intercostal vessels and nerves run below the inferior border of the ribs. Thus, the drain track should be directed over the top of the lower rib to avoid the intercostal vessels lying below each rib.</i></p>



15)	<p>A 32-year-old patient presents to Accident & Emergency with a deep cut on the surface of her palm and the surface of the back of her wrist. She has an inability to extend the distal phalanx of her ring finger. What is the SINGLE most likely structure affected?</p> <p>A. Extensor digitorum B. Branch of ulnar nerve C. Flexor digitorum profundus D. Palmaris brevis E. Branch of median nerve</p>
16)	<p>A 55-year-old man with a history of a stroke a year ago has severe difficulty remembering events in his life. This includes important events like the year he married his wife. Along with the long-term memory impairment, he has altered sexual behaviour which has been seen after the stroke. He is also noted to have a visual defect after the stroke. What is the SINGLE most likely visual defect?</p> <p>A. Homonymous hemianopia B. Upper homonymous quadrantanopias C. Lower homonymous quadrantanopias D. Binasal hemianopia E. Bitemporal hemianopia</p> <p><i>This man has had a stroke affecting his temporal lobe. It is important to note that the most common cause of temporal lobe lesions is a cerebrovascular event (CVE). Several neural structures found in the temporal lobe are proposed to be involved in memory. This also include structures closely related to it such as the amygdala, the hippocampus, and the rhinal cortex in the temporal lobe.</i></p> <p><i>Once you know that the temporal lobe is affected, you would be able to answer the question. The optic radiation passes through the temporal lobes. Damage to this can cause an upper homonymous quadrantanopias.</i></p>
17)	<p>What SINGLE anatomical landmark correlates to the tip of the 9th costal cartilage?</p> <p>A. Fundus of the gallbladder B. Deep inguinal ring C. Termination of the spinal cord D. Stellate ganglion E. Inferior vena cava passing through the caval opening</p> <p><i>The fundus of the gall-bladder approaches the surface behind the anterior end of the ninth right costal cartilage close to the lateral margin of the Rectus abdominis.</i></p>



18) A 34-year-old man has a white patch on the margin of the mid-third of his tongue. Which is the SINGLE most likely lymph node involved?

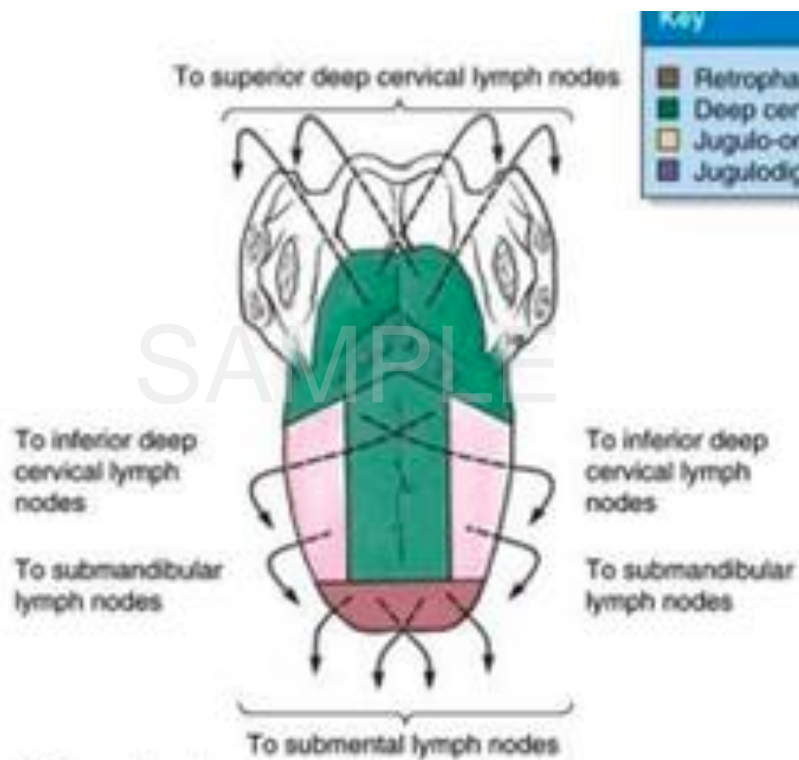
- A. External iliac lymph node
- B. Submandibular lymph node**
- C. Submental lymph node
- D. Deep cervical lymph node
- E. Aortic lymph node

The tip of the tongue drains bilaterally to the submental nodes.

The anterior two-thirds of the tongue drain unilaterally to the submandibular nodes.

The posterior one-thirds of the tongue drains bilaterally to the jugulo-omohyoid nodes.

The posterior most part of the tongue drains bilaterally into the upper deep cervical lymph nodes.



19) A 12-year-old boy presents with a painful swollen knee after a sudden fall on his right knee. The pain is localized below the knee cap. Which SINGLE anatomical structure is most likely to be affected?

- A. Semimembranosus bursa
- B. Prepatellar bursa**
- C. Pretibial bursa
- D. Suprapatellar bursa
- E. Pes anserine bursa



	<p><i>The prepatellar bursa is a frontal bursa of the knee joint. It is a superficial bursa with a thin synovial lining located between the skin and the patella.</i></p> <p><i>Prepatellar bursitis classically occurred in housemaids, hence the nickname 'housemaid's knee'. It is commonly seen in people who kneel such as plumbers. Friction caused by repeated kneeling can cause it. It is a common cause of swelling and pain above the patella (kneecap), and is due to inflammation of the prepatellar bursa.</i></p> <p><u>Symptoms:</u></p> <ul style="list-style-type: none">- Redness- Inability to flex the knee.- Pain and swelling is localized over site of bursa (e.g. below patella) <p><i>Rest usually relieves symptoms.</i></p>
20)	<p>A 60-year-old man screwing his cupboard to the wall when he suddenly felt a rupture at the cubital fossa resulting in a swollen elbow with weakness on flexion and supination. A lump in the forearm is seen. What is the SINGLE most likely diagnosis?</p> <p>A. Hand flexor tendon rupture B. De Quervain's disease C. Biceps tendon rupture D. Tennis elbow E. Golfer's elbow</p> <p><i>The weakness and lump at forearm are characteristic for a biceps tendon rupture. There are two types of biceps tendon rupture which are proximal and distal. Thankfully, this question does not require you to differentiate the two.</i></p> <p><u>Proximal biceps tendon rupture:</u></p> <ul style="list-style-type: none">- Ruptures of the proximal biceps tendon make up nearly all biceps ruptures.- Presents with the biceps muscle bunches up in the distal arm, causing the characteristic 'Popeye muscle' appearance. There is minimal loss of function. <p><u>Distal biceps tendon rupture:</u></p> <ul style="list-style-type: none">- Distal biceps tendon rupture is usually caused by a single traumatic event involving flexion against resistance, with the elbow at a right angle.- Presents with a sudden sharp tearing sensation resulting in a painful swollen elbow with weakness of flexion and supination.



21) A 33-year-old man complains of double vision when he looks to the right. Which is the SINGLE most likely nerve to be involved?

- A. Left abducens
- B. Right abducens**
- C. Left trochlear
- D. Right trochlear
- E. Right oculomotor

His right eye is unable to abduct thus he sees double. The nerve involved here would be the right abducens nerve.

Nerves involving the eye:

CN III - Oculomotor nerve:

- Controls most of eye muscle
- Constriction of pupil
- Levator palpebrae superioris

CN IV - Trochlear nerve:

- Innervates a single muscle - Superior oblique

CN VI - Abducens nerve:

- Lateral rectus muscle

The simple method to remember this for the exam is:

CN III - Oculomotor nerve:

- Will have features of either ptosis and/or a dilated pupil on the nerve on the same side as the affected eye
- Mnemonic: Letter "O" for oculomotor which with good imagination can represent a dilated pupil.

CN IV - Trochlear nerve:

- Diplopia on downward gaze
- If looks right and sees double, then lesion is on the left. (Opposite to gaze)

CN VI - Abducens nerve:

- If looks left and sees double, then lesion is on the left. (Same side as gaze)

Another Mnemonic is:

LR6(SO4)O3

Lateral rectus - 6th Nerve



	<p><i>Superior oblique - 4th Nerve</i> <i>Others - 3rd Nerve</i></p>
22)	<p>Which anatomical structure is located halfway between the suprasternal notch and pubic symphysis?</p> <p>A. Fundus of the gallbladder B. Mcburney's point C. Stellate ganglion D. Deep inguinal ring E. Transpyloric plane</p> <p><i>The suprasternal notch (fossa jugularis sternalis) is also known as the jugular notch</i></p> <p><i>The Transpyloric plane, also known as Addison's Plane, is an upper transverse line, located halfway between the jugular notch and the upper border of the pubic symphysis. The plane in most cases cuts through the pylorus of the stomach, the tips of the ninth costal cartilages and the lower border of the first lumbar vertebra.</i></p>
23)	<p>A 32-year man presents to A&E with a fracture dislocation of his right elbow. He complains of loss of sensation in his little finger and ring finger. Which is the SINGLE most likely nerve to be involved?</p> <p>A. Median nerve B. Ulnar nerve C. Radial nerve D. Superficial branch of radial nerve E. Axillary nerve</p> <p><i>Ulnar nerve (C8–T1) Sensory loss is over the little finger and a variable area of the ring finger (palmar & dorsal)</i></p> <p><i>This is the nerve of finger abduction and adduction. Injury level determines severity of the claw deformity. In a distal lesion of the ulnar nerve, there will be more clawing of the 4th and 5th fingers compared with a proximal, more complete lesion at the elbow.</i></p>



24)	<p>A 36-year-old male involved in a street fight presents with bruises and deformity of his upper part of leg. X-ray shows a fracture of the neck of fibula. What is the single most associated nerve injury?</p> <p>A. Sciatic nerve B. Femoral nerve C. Musculocutaneous nerve D. Common peroneal nerve E. Tibial nerve</p> <p><u>Peroneal nerve injury:</u></p> <ul style="list-style-type: none">- The common peroneal nerve crosses the fibular neck and is susceptible to injury from a fibular neck fracture, the pressure of a splint or during surgical repair.- Peroneal nerve injury may result in foot drop and sensation abnormalities. <p><i>It is important to remember the key phrases for nerve damage during PLAB. There are certain phrases you need to memorise to relate it to a specific nerve damages.</i></p> <p><u>Examples:</u></p> <p>Wrist drop → Radial nerve Foot drop → Either common peroneal nerve or sciatic nerve Claw hand → Ulnar nerve Paraesthesia of thumb, index and middle finger → Median nerve Numbness on superior aspect of upper arm just below shoulder joint → Axillary nerve Fibular neck fracture → Common peroneal nerve Femur neck fracture or Acetabular fractures → Sciatic nerve Fracture of humeral shaft → Likely Radial nerve Fracture of humeral neck → Likely Axillary nerve Monteggia fracture → Radial nerve Paraesthesia and impaired sensation in both hands (glove distribution) → Peripheral neuropathy</p>
25)	<p>A 15-year-old boy complaining of double vision when climbing down the stairs after being hit on the face. The images appear above one another. He also notices double vision when he looks to the right. Which is the SINGLE most likely nerve to be affected?</p> <p>A. Left Abducens nerve B. Left Trochlear nerve C. Left Oculomotor nerve D. Right Trochlear nerve E. Right Abducens nerve</p>



	<p><i>Trochlear nerve innervates the superior oblique muscle. It only causes diplopia on downgaze like looking downwards to walk. It is a trochlear nerve lesion on the left side because he sees double when looking on the right side.</i></p>
26)	<p>A 64-year-old woman has difficulty in moving her right shoulder on recovering from surgery of the posterior triangle of her neck. What is the SINGLE most likely anatomical structure to be affected?</p> <p>A. Accessory nerve B. Glossopharyngeal nerve C. Hypoglossal nerve D. Vagus nerve E. Brachial plexus</p> <p><i>The accessory nerve is a cranial nerve that controls the sternocleidomastoid and trapezius muscles.</i></p> <p><i>Injury to the spinal accessory nerve can cause an accessory nerve disorder or spinal accessory nerve palsy, which results in diminished or absent function of the sternocleidomastoid muscle and upper portion of the trapezius muscle.</i></p>
27)	<p>A camel rider sustained an injury to the lateral side of his right leg just below the knee caused by the camel stick. The site is slightly bruised and tender to touch. He is unable to either dorsiflex or evert the foot. There is loss of sensation over the front and outer half of the leg and dorsum of the foot. What is the SINGLE most likely anatomical structure to be affected?</p> <p>A. Sural nerve B. Common peroneal nerve C. Tibia nerve D. Lateral plantar nerve E. Medial plantar nerve</p> <p><i>This is actually called a peroneal strike. A peroneal strike is a temporarily disabling blow to the common peroneal nerve of the leg, just above the knee which causes a temporary loss of motor control of the leg, accompanied by numbness and a painful tingling sensation from the point of impact all the way down the leg, usually lasting anywhere from 30 seconds to 5 minutes in duration.</i></p> <p><i>Common peroneal nerve</i></p>



The common peroneal nerve innervates the short head of the biceps femoris muscle (part of the hamstring muscles, which flex at the knee). In addition, its terminal branches also provide innervation to muscles:

Motor Functions

Superficial fibular nerve: Innervates the muscles of the lateral compartment of the leg. These muscles act to evert the foot.

Deep fibular nerve: Innervates the muscles of the anterior compartment of the leg. These muscles act to dorsiflex the foot, and extend the digits. It also innervates some intrinsic muscles of the foot.

If the common fibular nerve is damaged, the patient may lose the ability to dorsiflex and evert the foot, and extend the digits.

Sensory Functions

There are two cutaneous branches that arise directly from the common fibular nerve as it moves over the lateral head of the gastrocnemius.

Sural communicating nerve: This nerve combines with a branch of the tibial nerve to form the sural nerve. The sural nerve innervates the skin over the lower posterolateral leg.

Lateral sural cutaneous nerve: Innervates the skin over the upper lateral leg.

In addition to these nerves, the terminal branches of the common fibular nerve also have a cutaneous function:

Superficial fibular nerve: Innervates the skin of the anterolateral leg, and dorsum of the foot (except the skin between the first and second toes).

Deep fibular nerve: Innervates the skin between the first and second toes.

Tip: It may be hard to remember all the sensory and motor functions of the peroneal nerve. So just remember this keyword "foot drop". Whenever you see the word "foot drop" or "unable to dorsiflex" pick peroneal nerve.



28)	<p>A 68-year-old woman is unable to extend the interphalangeal joint of her right thumb six weeks following a fracture of the right radius. The other fingers and thumb movements are unaffected. What is the SINGLE most likely tendon to be damaged?</p> <p>A. Abductor pollicis longus</p> <p>B. Extensor pollicis brevis</p> <p>C. Extensor pollicis longus</p> <p>D. Flexor digitorum profundus</p> <p>E. Flexor pollicis longus</p> <p><i>Full extension of right thumb is achieved by extensor pollicis longus.</i></p>
29)	<p>A 62-year-old male comes to the GP complaining of double vision when climbing down the stairs. Which is the SINGLE most likely nerve to be affected?</p> <p>A. Abducens nerve</p> <p>B. Trochlear nerve</p> <p>C. Oculomotor nerve</p> <p>D. Optic nerve</p> <p>E. Trigeminal nerve</p> <p><i>Trochlear nerve innervates the superior oblique muscle. It only causes diplopia on downgaze like looking downwards to walk.</i></p> <p><i>This is a high yield question in PLAB. Please remember the nerves involving the eye and how they present.</i></p> <p><i>Nerves involving the eye</i></p> <p><i>CN III - Oculomotor nerve</i> <i>Controls most of eye muscle</i> <i>Constriction of pupil</i> <i>Levator palpebrae superioris</i></p> <p><i>CN IV - Trochlear nerve</i> <i>Innervates a single muscle - Superior oblique</i></p>



	<p><i>CN VI - Abducens nerve</i> <i>Lateral rectus muscle</i></p>
30)	<p>A 35-year-old man is due for a surgery to attempt to removal of a glioma. What is the SINGLE most likely anatomical structure to be opened during the surgery?</p> <p>A. Cricoid cartilage B. Rectus sheath muscle C. Dura Mater D. Conjoined tendon E. Intercostal muscles</p> <p><i>Gliomas are tumours arising from glial cells and may occur in the spinal cord or the brain.</i></p> <p><i>The dura mater, which is a thick membrane of the outermost three layers of the meninges that surround the brain and spinal cord would need to be opened for the surgery to take place.</i></p>
31)	<p>What anatomical structure or landmark lies just above the midpoint of the inguinal ligament?</p> <p>A. Femoral artery pulse felt B. Femoral artery pulse felt C. Stellate ganglion D. Deep inguinal ring E. Transpyloric plane</p> <p>The deep Inguinal ring is located about 2.5 cm above the midpoint of the inguinal ligament.</p>
32)	<p>A 33-year-old man presents with outward gaze and ptosis of his right eye. He also complains of seeing double. Which is the SINGLE most likely nerve to be affected?</p> <p>A. Left trochlear B. Left oculomotor C. Right trochlear D. Right abducens E. Right oculomotor</p>



The nerve involved here would be the right oculomotor nerve. This is a high yield question in PLAB. Please remember the nerves involving the eye and how they present.

Nerves involving the eye

*CN III - Oculomotor nerve
Controls most of eye muscle
Constriction of pupil
Levator palpebrae superioris*

*CN IV - Trochlear nerve
Innervates a single muscle - Superior oblique*

*CN VI - Abducens nerve
Lateral rectus muscle*

SAMPLE



SAMPLE



SAMPLE



CARDIOLOGY

SAMPLE



1)	<p>A 50-year-old female presents with shortness of breath and palpitations which has been on-going for the past few hours. She has ankle swelling which has been present for more than a year and feels difficulty in breathing while lying down. She is a known alcoholic. A chest radiograph shows evidence of cardiac enlargement. What is the SINGLE most likely cause of her worsening condition?</p> <p>A. Ventricular tachycardia B. Paroxysmal supraventricular tachycardia C. Ventricular fibrillation D. Atrial fibrillation E. Ventricular ectopic</p> <p><i>Ankle swelling and orthopnoea are features of heart failure. These features in combination with the history of alcoholism gives us the hints of an alcoholic cardiomyopathy which is a type of dilated cardiomyopathy. Atrial fibrillation is the most common arrhythmia that develops in patients with dilated cardiomyopathy. Acute decompensations can occur especially in patients with asymptomatic LV dysfunction who develop atrial fibrillation.</i></p> <p><i>In some scenarios, there is a setting of acute alcohol use or intoxication followed by palpitations, dizziness, and syncope which can be attributed to arrhythmias such as atrial fibrillation or flutters. This is known as holiday heart syndrome because the incidence is increased following weekends and during holiday seasons.</i></p> <p><u>Atrial fibrillation presentation:</u></p> <ul style="list-style-type: none">- Dyspnoea- Palpitation- Syncope or dizziness- Chest discomfort or pain- Stroke or transient ischaemic attack- An irregularly irregular pulse
2)	<p>A 55-year-old man who suffered a myocardial infarction a few days ago is now ready for discharge. His medical history remains insignificant other than the myocardial infarction he had. He has no drug allergies. He has already been put on aspirin and clopidogrel. What is the SINGLE most appropriate medication(s) to be given to him on discharge?</p> <p>A. Statin only B. Statin and Warfarin C. Statin and ACE inhibitor D. Warfarin only E. Heparin only</p>



	<p><i>All patients with MI on discharge:</i></p> <ul style="list-style-type: none">➔ <i>Dual antiplatelet therapy: Aspirin + Clopidogrel</i> <i>Note: Aspirin is continued life long</i> <i>Clopidogrel for 12 months</i>➔ <i>Beta Blockers</i> <i>Offer BB to people who present acutely with MI as soon as they are hemodynamically stable Continue a beta-blocker for at least 12 months after an MI in people without heart failure. Continue a beta-blocker indefinitely in people with HF</i>➔ <i>ACEi</i> <i>Offer ACEi to people who present acutely with MI as soon as they are hemodynamically stable</i> <i>If intolerant to ACEi → use ARB</i>➔ <i>STATINS</i> <p><i>Mnemonic: Once the patient is discharged, he can take the CAB or BAS (BUS) home.</i> <i>C - Clopidogrel</i> <i>A - Aspirin</i> <i>B - Beta Blockers</i> <i>A - ACEi</i> <i>S – Statin</i></p>
3)	<p>A 43-year-old lady is admitted with pyrexia, breathlessness and history of syncope. She was recently diagnosis with a pulmonary embolus. There is an early diastolic sound and a mid-diastolic rumble. Her jugular venous pressure is elevated with prominent a-waves. What is the SINGLE most likely diagnosis?</p> <p>A. mitral regurgitation B. Ventricular ectopics C. Pulmonary regurgitation D. Atrial myxoma E. Complete heart block</p> <p><i>Atrial myxomas are benign tumours.</i></p> <p><i>Around three quarters of atrial myxomas occur in the left atria, and tend to grow on the wall (septum).</i></p> <p><i>Sometimes small pieces of the tumor can break off and fall into the bloodstream. If this happens, they can block an artery elsewhere in the body such as the brain, which could cause a stroke, or in the lungs causing a pulmonary embolus.</i></p> <p><i>Around 10% of myxomas seem to be inherited (passed down through families). These are known as familial myxomas.</i></p>



	<p><i>The symptoms occur due to obstruction of the mitral valve which result in syncope and heart failure.</i></p> <p><i>Features:</i></p> <ul style="list-style-type: none">➔ <i>Symptoms of haemodynamic obstruction, embolisation, or constitutional symptoms such as fever, malaise, tachycardia and tachypnoea</i>➔ <i>Symptoms and signs of ischaemia or infarction in the peripheries, due to embolisation of adherent thrombus</i>➔ <i>Atrial fibrillation</i>➔ <i>Large myxomas may impair intracardiac blood flow, causing dyspnoea, syncope or symptoms and signs of congestive cardiac failure</i>➔ <i>Echo: pedunculated heterogeneous mass typically attached to the fossa ovalis region of the interatrial septum</i>
4)	<p>A 48-year-old man has continuous anterior chest pain which is worse on inspiration. 4 weeks ago, he had a myocardial infarction. He has a temperature of 37.5°C. His blood results show an ESR of 82 mm/h. What is the SINGLE most likely explanation for the abnormal investigation?</p> <p>A. Pulmonary embolism B. Cardiac tamponade C. Atrial thrombus D. Left ventricular aneurysm E. Dressler syndrome</p> <p><i>Dressler's syndrome tends to occur around 2-6 weeks following a MI. The underlying pathophysiology is thought to be an autoimmune reaction against antigenic proteins formed as the myocardium recovers. It is characterised by a combination of fever, pleuritic pain, pericardial effusion and a raised ESR. It is treated with NSAIDs.</i></p>



5) A 55-year-old man had a myocardial infarction 3 days ago. He now complains of a shortness of breath and a sharp pain in the chest. The pain increases when he breathes and is relieved when sitting forward. His respiratory rate is 22 breath's/minute and his heart rate is 95 beats/minute. What is the SINGLE most likely diagnosis?

- A. Myocardial infarction
- B. Pericarditis**
- C. Aortic dissection
- D. Pulmonary embolism
- E. Cardiac tamponade

Pericarditis is one of the differentials of any patient presenting with chest pain. Pericarditis presents as sharp, pleuritic, and positional chest pain, usually 1 to 3 days' post infarct.

The pain that is relieved when sitting forward is a clincher for pericarditis.

Acute pericarditis

Features:

- Chest pain is described as sharp, stabbing, central chest pain, with radiation to the shoulders and upper arm
- Chest pain may be pleuritic and is often relieved by sitting forwards
- Chest pain may be made worse by inspiration, cough, swallowing, or movement of the trunk
- Other symptoms include non-productive cough and dyspnoea
- Pericardial friction rub on auscultation (Clinically, the presence of a pericardial friction rub is pathognomonic - often a rub can be heard even when a pericardial effusion is present)

Causes:

- Viral infections (Coxsackie)
- Tuberculosis
- Uraemia (causes 'fibrinous' pericarditis)
- Trauma
- Post-myocardial infarction, Dressler's syndrome
- Connective tissue disease

Post myocardial infarction is an extremely important cause to remember for the exam.

ECG changes:

- Widespread 'saddle-shaped' ST elevation (Saddle-shaped meaning concavity directed upwards)
- PR segment depression



Comparing common features of Acute Pericarditis, Pericardial Effusion, Cardiac Tamponade that are often asked in PLAB				
	Acute Pericarditis	Pericardial Effusion	Cardiac Tamponade	
Cause	e.g. Viruses (Coxsackie) Uraemia Myocardial infarction, dressler's	Any cause of pericarditis (see left)	Any cause of pericarditis Trauma	
Clinical Features	Central chest pain worse on inspiration or lying flat ± relief by sitting forward. Pericardial friction rub	Dyspnoea, raised JVP	Pulse ↑ BP↓ muffled heart sounds ↑ JVP Beck's triad: falling BP; rising JVP; muffled heart sounds.	
Test	ECG classically shows concave (saddle-shaped) ST segment elevation (NB: troponin may be raised),	CXR shows enlarged, globular heart ECG shows low-voltage QRS complexes and alternating	Echo is diagnostic	
Treatment	NSAIDS	Pericardiocentesis	Urgent Pericardiocentesis	



6)	<p>A 28-year-old man complains of heart racing. He is completely conscious throughout. He has a pulse of 132 beats/minute, a blood pressure of 120/80 mmHg and a respiratory rate of 20 breaths/minute. An ECG was taken which shows supraventricular tachycardia. What is the SINGLE most appropriate initial management?</p> <p>A. Amiodarone B. Adenosine C. Radio-frequency ablation D. Carotid massage E. Metoprolol</p> <p><i>Carotid massage should be attempted before giving IV adenosine.</i></p> <p><u>Supraventricular tachycardia</u></p> <p><i>Paroxysmal supraventricular tachycardia is manifested as an absolutely regular rhythm at a rate between 130 and 220 beats/min.</i></p> <p><i>Acute management should be done in the following sequence.</i></p> <p><i>1st. Valsalva manoeuvre, carotid massage</i> <i>2nd Adenosine IV</i> <i>3rd. Electrical Cardioversion</i></p> <p><i>Prevention of episodes:</i></p> <ul style="list-style-type: none">- beta-blockers- radio-frequency ablation
7)	<p>A 44-year-old man who presently has acute renal failure has an ECG that shows tall tented T waves, flat P waves and a wide QRS complex. What is the SINGLE most likely electrolyte abnormality?</p> <p>A. Hypophosphataemia B. Hyperkalaemia C. Hypokalaemia D. Hypercalcaemia E. Hypocalcaemia</p> <p><i>Acute renal failure is one of the causes of hyperkalaemia. Together with the ECG findings points towards hyperkalaemia as the answer.</i></p> <p><i>ECG characteristics in electrolyte disbalance</i></p>



	<p><i>Hyperkalaemia:</i></p> <ul style="list-style-type: none">- Tall-tented T waves, small P waves, widened QRS leading to a sinusoidal pattern and asystole. <p><i>Hypokalemia:</i></p> <ul style="list-style-type: none">- Flat T waves, ST depression and prominent U waves <p><i>Hypercalcaemia:</i></p> <ul style="list-style-type: none">- Shortened QT intervals <p><i>Hypocalcaemia:</i></p> <ul style="list-style-type: none">- Prolonged QT intervals
8)	<p>A 69-year-old man was successfully thrombolysed for an inferior myocardial infarction 15 days ago and was discharged 5 days after the thrombolysis. He is now re-admitted as he is hypotensive, tachycardic and with pulmonary oedema. What is the most SINGLE most likely diagnosis?</p> <p>A. Aortic regurgitation B. Acute mitral regurgitation C. Mitral valve prolapse D. Pulmonary stenosis E. Rheumatic mitral valve stenosis</p> <p><u>Acute mitral regurgitation post-MI</u></p> <p><i>This is a mitral regurgitation due to ischaemic papillary muscle dysfunction or partial rupture. It is usually seen 2-10 days post myocardial infarction. It is more commonly associated with inferior myocardial infarction than anterior myocardial infarction.</i></p> <p><i>'Silent MR' is quite frequent and must be suspected in any post-MI patient with unexplained haemodynamic deterioration.</i></p> <p><i>Diagnosis:</i> <i>Echocardiogram</i></p> <p><i>Treatment:</i> <i>This is unlikely to be asked in PLAB but for your own knowledge:</i> <i>Acute MR is treated with vasodilator therapy but often require emergency surgical repair.</i></p>



9) A 6-week-old baby has a pansystolic murmur at sternal border. He feeds poorly and has poor weight gain. The baby is acyanotic. What is the SINGLE most likely diagnosis?

- A. Tetralogy of Fallot
- B. Atrial septal defect
- C. Ventricular septal defect**
- D. Patent ductus arteriosus
- E. Transposition of the great arteries

A key mnemonic that can help you get through PLAB part 1 cardio questions is:

Pan-systolic → MR, TR, VSD

Hence, when you see the words pan-systolic murmur in the question, straight away, you can cut out any options that ARE NOT mitral regurgitation, tricuspid regurgitation and ventricular septal defect.

In this question, the phrase pan-systolic murmur already gives you the answer which is VSD.

Ventricular septal defect:

- Basically, a hole connecting the ventricles

Causes:

- Congenital
- Acquired (post-MI)

Symptoms:

- May present with severe heart failure in infancy, or remain asymptomatic and be detected incidentally in later life.

Signs:

These depend on size and site:

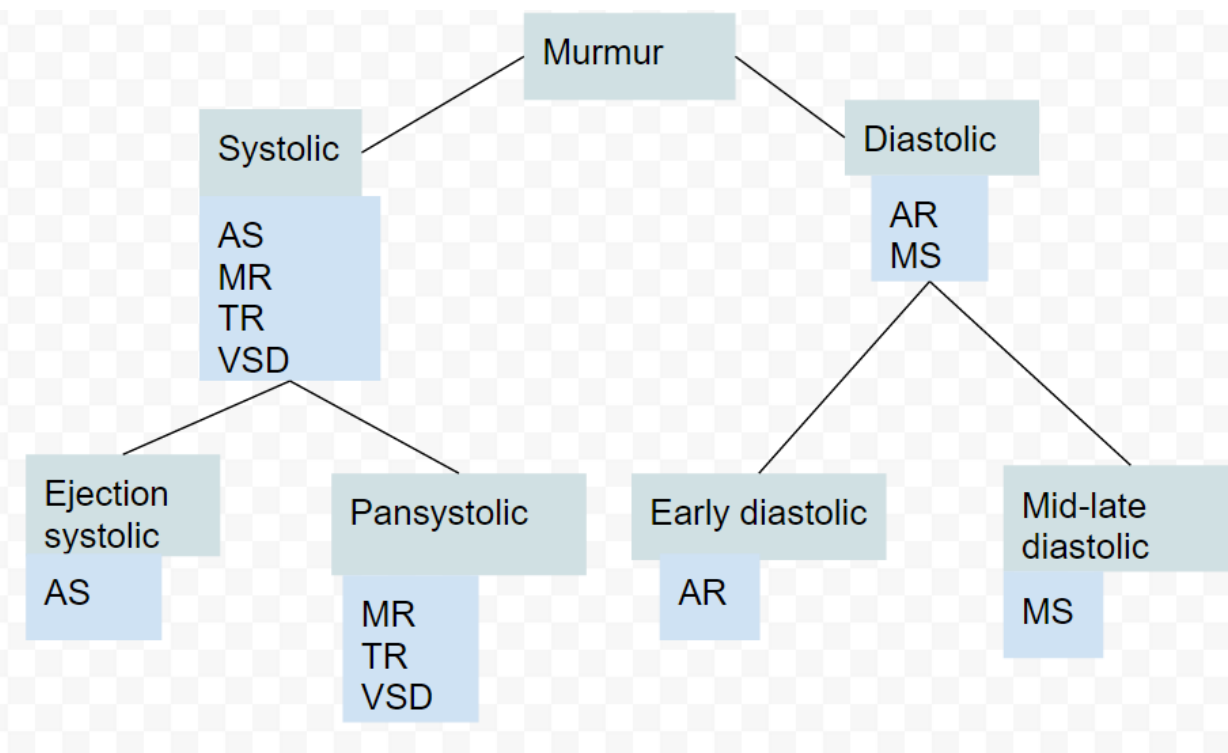
- A. Small holes
 - Infant or child is asymptomatic with normal feeding and weight gain
 - May be detected when a murmur is heard on routine examination
 - Give louder murmurs
 - Classically, a harsh pan-systolic murmur heard at the left sternal edge, with a systolic thrill, and a left parasternal heave

Most importantly is to remember the term “pan-systolic murmur” as often that alone can give you the answer provided mitral regurgitation and tricuspid regurgitation are not one of the options.

- B. Large holes
 - Associated with signs of pulmonary hypertension
 - These babies may develop a right to left shunt with cyanosis or Eisenmenger's syndrome



The diagnosis and management → Not so important for the exam



A memory flow chart to help you easily differentiate murmurs

10)

A 55-year-old man with a history of a myocardial infarction has progressive dyspnoea. He has had previous admissions with heart failure in the past year. He has a respiratory rate of 31 breaths/minute and a systolic blood pressure of 90 mmHg. His oxygen saturation is 90% on room air. On examination, he looks pale and sweaty, and has widespread crepitations over both lung fields. Oxygen by face mask was commenced. What is the SINGLE most appropriate investigation?

A. Chest X-ray

B. Computed tomography scan of the chest

C. Electrocardiogram

D. Full blood count

E. D-dimer test

This patient is suffering from acute pulmonary oedema brought upon by heart failure. While it is true that an ECG is important to look for arrhythmia, a chest-X ray would be a better answer given that it would be able to confirm pulmonary oedema. This question is very debatable but the clinical picture here fits pulmonary oedema slightly better than a myocardial infarction. In reality, both will be performed.



11) A 65-year-old man presents with recurrent light-headedness for one month especially when he gets up from bed in the morning. He also has occasional episodes of light-headedness when standing for prolonged periods of time. He suffers from hypertension and type 2 diabetes. His regular medications include atenolol, amlodipine, bendroflumethiazide and metformin. On physical examination, his blood pressure was 125/85 mmHg taken when he was supine and 101/69 mmHg when standing. What is the SINGLE most likely diagnosis?

- A. Acute hypotension
- B. Vasovagal faints
- C. Postural hypotension**
- D. Postprandial hypotension
- E. Aortic stenosis

Postural hypotension (Orthostatic hypotension)

Postural hypotension should always be considered in an elderly patient especially if he is on multiple medications and presents with dizziness. The baroreflex mechanisms which control heart rate and vascular resistance decline with age (particularly in patients with hypertension) who thus display lability in BP. They are particularly prone to postural hypotension and to the effects of drugs.

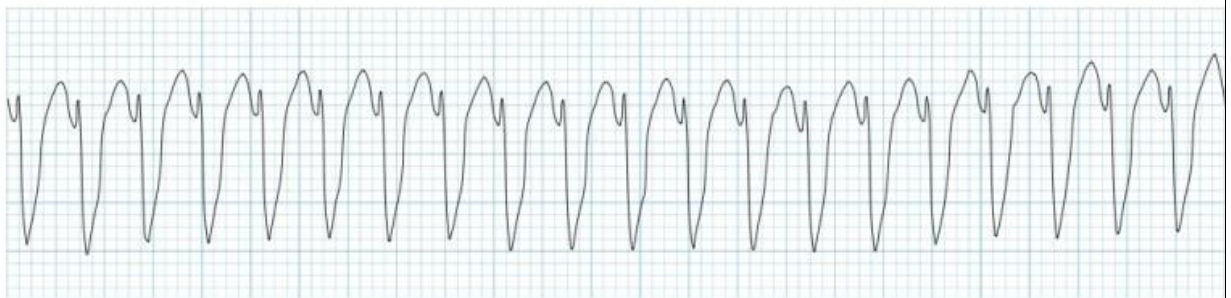
It may present with dizziness or sudden loss of consciousness after getting up from chair, with recovery within a minute

Diagnosis:

- Blood pressure taken when lying down and standing up

Postural hypotension is defined as a drop-in BP of more than 20 mmHg after 3 minutes of standing.

12) A 74-year-old man started having chest pain. He has a blood pressure of 70/50 mmHg. He is conscious and a radial pulse is felt. An ECG shows the following rhythm. What is the SINGLE



most likely diagnosis?



A. Supraventricular tachycardia

B. Ventricular tachycardia

C. Ventricular fibrillation

D. Atrial fibrillation

E. Atrial flutter

For junior doctors, the ECG pattern between ventricular tachycardia and ventricular fibrillation can be rather hard to distinguish. But here as the patient is still conscious, it cannot be ventricular fibrillation as v. fib would present without a pulse and the patient would not be conscious. Thus, ventricular tachycardia is the answer here.

Ventricular tachycardia:

Ventricular tachycardia may impair cardiac output with consequent hypotension, collapse, and acute cardiac failure. This is due to extreme heart rates and lack of coordinated atrial contraction (loss of “atrial kick”).

The rate of V. Tach is from about 100-250 bpm. P Waves may be present or absent. P waves are usually not seen if the rate is increased. If present, the P Waves have no relation to the QRS complexes of the V. Tach.

V. tach can present in two ways:

1. With Pulse

a) Haemodynamically stable or

b) Haemodynamically unstable — e.g hypotension, chest pain, cardiac failure, decreased conscious level.

2. Without Pulse

Management depends on how the patient presents:

With Pulse:

a) Haemodynamically stable → antiarrhythmics e.g. amiodarone, lidocaine, procainamide

b) Haemodynamically unstable — e.g hypotension, chest pain, cardiac failure, decreased conscious level. → immediate electrical cardioversion is indicated

Without Pulse → immediate electrical cardioversion is indicated



13)	<p>A 75-year-old man is found to be unresponsive. The ward doctor is called to the patient's bedside. He is not breathing and has no detectable pulse. Which is the SINGLE most appropriate next step?</p> <p>A. Get a defibrillator B. Give two rescue breaths immediately C. Check notes for a Do Not Attempt Resuscitation (DNAR) order D. Insert two wide-bore cannulas into each antecubital fossa E. Start chest compressions at a rate of 30:2</p>
14)	<p>A 43-year-old man was brought into the A&E after being stabbed in the chest with a knife. His chest is bilaterally clear. He has muffled heart sounds and his neck veins look distended. His systolic blood pressure is 60 mmHg and pulse is 120 bpm. What is the SINGLE most likely diagnosis?</p> <p>A. Pulmonary embolism B. Pericardial effusion C. Cardiac tamponade D. Hemothorax E. Pneumothorax</p> <p><i>This question clearly points towards cardiac tamponade. His chest is bilaterally clear thus we can therefore exclude pneumothorax or pleural effusion. Muffled heart sounds, distended neck veins, hypotension are called Beck's triad and it is a classical finding in cardiac tamponade.</i></p> <p><i>Cardiac tamponade:</i> <i>A life-threatening condition in which a pericardial effusion has developed so rapidly or has become so large that it compresses the heart.</i></p> <p><i>Aetiology:</i> <i>Usually penetrating or blunt chest trauma</i></p> <p><i>Features:</i></p> <ul style="list-style-type: none">- <i>Dyspnoea</i>- <i>Raised JVP - seen by having neck veins which are distended</i>- <i>Tachycardia</i>- <i>Hypotension</i>- <i>Muffled heart sounds</i>- <i>Pulsus paradoxus</i> <p><i>Remember → Beck's triad: Muffled heart sounds, distended neck veins, and hypotension</i></p>



	<p><i>Diagnosis:</i> <i>Echocardiography</i></p> <p><i>Treatment:</i> <i>Pericardiocentesis</i></p>						
15)	<p>A 60-year-old lady has severe chest pain. ECG shows changes of inferior wall myocardial infarction. The ECG also shows progressive prolongation of PR interval until a QRS complex is dropped. What is the SINGLE most likely diagnosis?</p> <p>A. Atrial fibrillation</p> <p>B. Ventricular tachycardia</p> <p>C. Supraventricular tachycardia</p> <p>D. Mobitz type I AV block</p> <p>E. Mobitz type II AV block</p> <p><i>Inferior myocardial infarction is frequently associated with conduction defects.</i></p> <p><i>Mobitz type I AV block (also known as Wenckebach's block/phenomenon)</i> <i>There is progressive prolongation of the P-R interval following each atrial impulse, until an atrial impulse fails to be conducted to the ventricles causing a 'dropped' beat'.</i></p> <p><i>Heart block</i></p> <table><tr><td>First degree heart block</td><td><ul style="list-style-type: none">PR interval > 0.2 seconds</td></tr><tr><td>Second degree heart block</td><td><p><i>Mobitz type I AV block (Wenckebach block/phenomenon)</i></p><ul style="list-style-type: none">Progressive prolongation of the PR interval until a dropped beat occurs<p><i>Mobitz type II AV block</i></p><ul style="list-style-type: none">PR interval is constant but the P wave is often not followed by a QRS complex (dropped beat)</td></tr><tr><td>Third degree (complete) heart block</td><td><ul style="list-style-type: none">P waves will occur regularly, usually at a rate of around 75 beats per minute but are completely unconnected to the rhythm of the QRS complexes.</td></tr></table>	First degree heart block	<ul style="list-style-type: none">PR interval > 0.2 seconds	Second degree heart block	<p><i>Mobitz type I AV block (Wenckebach block/phenomenon)</i></p> <ul style="list-style-type: none">Progressive prolongation of the PR interval until a dropped beat occurs <p><i>Mobitz type II AV block</i></p> <ul style="list-style-type: none">PR interval is constant but the P wave is often not followed by a QRS complex (dropped beat)	Third degree (complete) heart block	<ul style="list-style-type: none">P waves will occur regularly, usually at a rate of around 75 beats per minute but are completely unconnected to the rhythm of the QRS complexes.
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16) A 62-year-old woman who had stroke a year ago now reports having increased dyspnoea on exertion. An ECG was performed which showed an atrial fibrillation. Chest X-ray shows a straight left heart border. What is the SINGLE most likely diagnosis?

- A.
Aortic regurgitation
- B.
Acute mitral regurgitation
- C.
Mitral valve prolapse
- D.
Pulmonary stenosis
- E.

Mitral valve stenosis

The clincher here is the chest X-ray that shows a straight left heart border. This is classic for mitral stenosis where the left atrium enlarges. The rest of the symptoms also match the diagnosis of mitral stenosis. The history of stroke given in this question is a clue that she has had atrial fibrillation for a while and had a systemic embolism (due to stagnation of blood in an enlarged left atrium).

Mitral Valve Stenosis:

- Most commonly due to rheumatic fever
- Results in right ventricular failure

Aetiology:

- Most cases are secondary to rheumatic fever → This is extremely important to remember for the exam

Pathogenesis:

- Mitral valve stenosis impedes left ventricular filling
- Increased left atrial pressure is referred to the lungs, causing pulmonary congestion
- Forward cardiac output becomes reduced, secondary pulmonary vasoconstriction occurs, and eventually right ventricular failure results

Clinical symptoms: Usually manifest slowly over years

- Dyspnoea
- Orthopnoea
- Paroxysmal nocturnal dyspnoea
- Right-sided heart failure
- Hepatomegaly
- Ascites
- Peripheral oedema

The following are presentations which are rare and unlikely to be asked:

- Haemoptysis (due to rupture of pulmonary vessels due to raised atrial pressure)
- Systemic embolism (due to stagnation of blood in an enlarged left atrium)

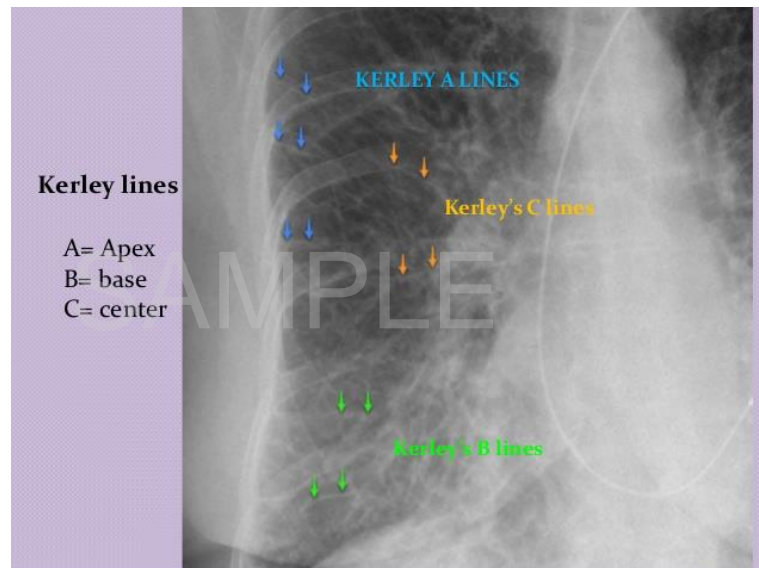


Physical signs:

- Malar flush on the cheeks
- Atrial fibrillation
- Pulmonary rales
- Loud S1 → This is particularly important to note for the exam
- Diastolic rumble (low-pitched apical murmur)

Diagnosis:

1. ECG
 - May show signs of right ventricular hypertrophy
 - Atrial fibrillation may be seen
 - P mitrale → bifid P wave
2. Chest x-ray
 - Large left atrium → straightening of the left heart border
 - Pulmonary hypertension, including Kerley B lines and increased vascular markings



3. Echocardiography
 - Thickening of mitral valve leaflets

- 17) A preterm neonate has a continuous murmur that disappeared at the time of discharge from the paediatric intensive care unit. What is the SINGLE most likely diagnosis?
- A. Patent ductus arteriosus**
B. Tetralogy of fallot
C. Transposition of great arteries
D. Atrial septal defect
E. Ventricular septal defect



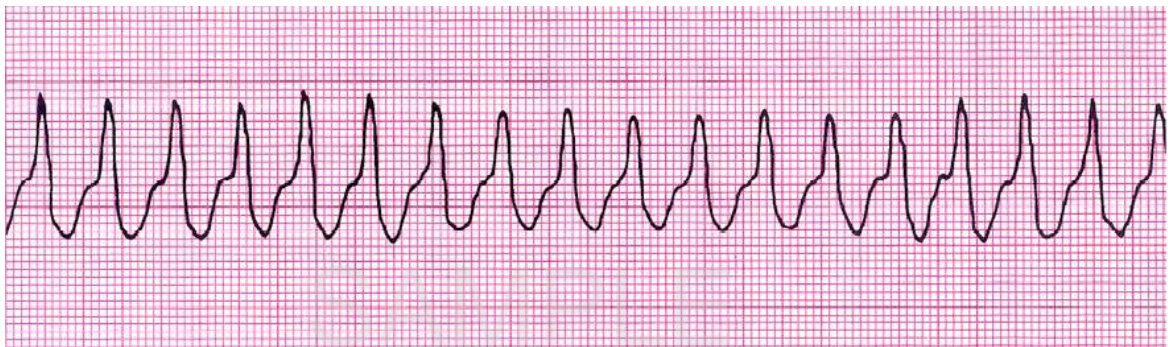
PDA's are very common in preterm babies and it also may close spontaneously.

Patent ductus arteriosus in preterm neonates:

- *PDA's are very common in preterm babies and can have significant physiological effects*
- *The continuous murmur (rarely heard)*
- *There may be a rough systolic murmur along the left sternal border*
- *Bounding peripheral pulses*
- *The diagnosis is confirmed by echocardiography which not only allows the PDA to be visualised but also assesses the haemodynamic significance of the PDA*
- *PDA's may close spontaneously*
- *Indomethacin closes the connection in the majority of cases*

18)

A 74-year-old man started having chest pain. He has a blood pressure of 70/50 mmHg. His level of consciousness is decreased. A radial pulse is felt. An ECG shows the following rhythm. What is the SINGLE most appropriate management?



A. Cardioversion

B. Carotid sinus massage

C. Adenosine

D. Amiodarone

E. Lidocaine

For junior doctors, the ECG pattern between ventricular tachycardia and ventricular fibrillation can be rather hard to distinguish. But here as the patient is still conscious, it cannot be ventricular fibrillation as v. fib would present without a pulse and the patient would not be conscious. Thus, ventricular tachycardia is the answer here.



	<p><i>Since the patient is hemodynamically unstable, cardioversion would be the answer.</i></p> <p><i>Ventricular tachycardia:</i> <i>Ventricular tachycardia may impair cardiac output with consequent hypotension, collapse, and acute cardiac failure. This is due to extreme heart rates and lack of coordinated atrial contraction (loss of “atrial kick”).</i></p> <p><i>The rate of V. Tach is from about 100-250 bpm. P Waves may be present or absent. P waves are usually not seen if the rate is increased. If present, the P Waves have no relation to the QRS complexes of the V. Tach.</i></p> <p><i>V. tach can present in two ways:</i></p> <ol style="list-style-type: none"><i>1. With Pulse</i><ol style="list-style-type: none"><i>a) Haemodynamically stable or</i><i>b) Haemodynamically unstable — e.g hypotension, chest pain, cardiac failure, decreased conscious level.</i><i>2. Without Pulse</i> <p><i>Management depends on how the patient presents:</i></p> <p><i>With Pulse:</i></p> <ol style="list-style-type: none"><i>a) Haemodynamically stable → antiarrhythmics e.g. amiodarone, lidocaine, procainamide</i><i>b) Haemodynamically unstable — e.g hypotension, chest pain, cardiac failure, decreased conscious level. → immediate electrical cardioversion is indicated</i> <p><i>Without Pulse → immediate electrical cardioversion is indicated</i></p>
19)	<p>A 44-year-old woman in the postnatal ward develops sudden onset chest pain and shortness of breath. She had an emergency C-section for fetal distress two days ago. She feels the breathlessness worsen when she lies down. She has a respiratory rate of 32 breaths/minute and a blood pressure of 100/60 mmHg. Her oxygen saturation is 89% on room air and temperature is 36.9°C. On examination, she looks pale and sweaty. Auscultation reveals widespread crepitations over both lung fields. An ECG was performed which shows sinus tachycardia. Oxygen by face mask was commenced. A chest X-ray confirms the diagnosis. Which SINGLE medication is used as part of the management?</p> <p>A. Co-amoxiclav B. Aspirin C. Furosemide D. Low molecular weight heparin E. Alteplase</p> <p><i>This patient is suffering from acute pulmonary oedema brought upon by heart failure. It is worth noting that this stem is a little tricky as there were no risk factors of heart failure mentioned and the information that the women had a recent C-section makes physicians (especially if you have</i></p>



	<p><i>worked in an obstetric unit), think of a pulmonary embolism. However, it is important to be aware that cardiac causes of breathlessness do occur in pregnancy and post-delivery as well. This stem gives the history of orthopnoea which clearly points towards heart failure as the reason for the shortness of breath.</i></p> <p><i>In terms of management of acute pulmonary oedema, 4 important steps need to be done:</i></p> <ol style="list-style-type: none"><i>1. Sit patient up, and give oxygen - aim for saturations $\geq 95\%$ ($>90\%$ in those with COPD)</i><i>2. Glyceryl trinitrate (GTN) spray two puffs sublingual</i><i>3. Furosemide 40 mg intravenously (slowly) produces transient venodilation and subsequent diuresis</i><i>4. Diamorphine 2.5-5 mg intravenously slowly (or morphine 5-10 mg intravenously slowly) can be used to relieve anxiety, pain and distress.</i>
20)	<p>A 60-year-old woman with a history of ischaemic heart disease presents to A&E with progressive dyspnoea. She has had previous admissions with heart failure in the past year. She has a respiratory rate of 34 breaths/minute and a systolic blood pressure of 90 mmHg. Her oxygen saturation is 88% on room air. On examination, she looks pale and sweaty, and has widespread crepitations over both lung fields. Oxygen by face mask was commenced. What is the SINGLE most appropriate next step in management?</p> <p>A. Bendroflumethiazide</p> <p>B. Furosemide</p> <p>C. Aspirin</p> <p>D. Carvedilol</p> <p>E. Spironolactone</p> <p><i>This patient is suffering from acute pulmonary oedema brought upon by heart failure.</i></p> <p><i>In terms of management of acute pulmonary oedema, 4 important steps need to be done:</i></p> <ol style="list-style-type: none"><i>1. Sit patient up, and give oxygen - aim for saturations $\geq 95\%$ ($>90\%$ in those with COPD)</i><i>2. Glyceryl trinitrate (GTN) spray two puffs sublingual</i><i>3. Furosemide 40 mg intravenously (slowly) produces transient venodilation and subsequent diuresis</i> <p><i>Diamorphine 2.5-5 mg intravenously slowly (or morphine 5-10 mg intravenously slowly) can be used to relieve anxiety, pain and distress.</i></p>



21)	<p>A 28-year-old man complains of heart racing. He is completely conscious throughout. He has a pulse of 132 beats/minute, a blood pressure of 120/70 mmHg and a respiratory rate of 21 breaths/minute. An ECG was taken which shows supraventricular tachycardia. What is the SINGLE most appropriate immediate management?</p> <p>A. Amiodarone B. Adenosine C. Lidocaine D. Verapamil E. Metoprolol</p> <p><u>Supraventricular tachycardia</u></p> <p><i>Paroxysmal supraventricular tachycardia is manifested as an absolutely regular rhythm at a rate between 130 and 220 beats/min.</i></p> <p><i>Acute management should be done in the following sequence:</i></p> <p><i>1st. Valsalva manoeuvre, carotid massage</i> <i>2nd. Adenosine IV</i> <i>3rd. Electrical Cardioversion</i></p> <p><i>Prevention of episodes:</i></p> <ul style="list-style-type: none">- <i>beta-blockers</i>- <i>radio-frequency ablation</i>
22)	<p>A 68-year-old man is found collapsed at a shopping mall. An ECG reveals no connection between P waves and QRS complexes with a rate of 35 beats/minute. What is the SINGLE most likely diagnosis?</p> <p>A. Third degree heart block B. Ventricular tachycardia C. First degree heart block D. Mobitz type I AV block E. Mobitz type II AV block</p>



23) A 46-year-old man was brought into the A&E after being stabbed in the chest with a knife. His chest is bilaterally clear. He has muffled heart sounds and his neck veins look distended. His blood pressure is 84/40 mmHg and pulse is 110 bpm. What is the SINGLE most appropriate investigation that can lead to a diagnosis?

A.
Echocardiogram

B.
Chest X-ray

C.
CTPA

D.
Spirometry

E.
Blood cultures

This question clearly points towards cardiac tamponade. His chest is bilaterally clear thus we can therefore exclude pneumothorax or pleural effusion. Muffled heart sounds, distended neck veins, hypotension are called Beck's triad and it is a classical finding in cardiac tamponade.

Cardiac tamponade:

A life-threatening condition in which a pericardial effusion has developed so rapidly or has become so large that it compresses the heart.

Aetiology:

Usually penetrating or blunt chest trauma

Features:

- *Dyspnoea*
- *Raised JVP - seen by having neck veins which are distended*
- *Tachycardia*
- *Hypotension*
- *Muffled heart sounds*
- *Pulsus paradoxus*

Remember → Beck's triad: Muffled heart sounds, distended neck veins, and hypotension

Diagnosis:

Echocardiography

Treatment:

Pericardiocentesis



24) A 72-year-old woman had sudden chest pain and shortness of breath 1 hour ago. There is ST elevation in the II, III and aVF on ECG. Oxygen has been started. She was given GTN and diamorphine which has improved her chest pain. Her heart rate is 90 bpm and respiratory rate is 18/min. What is the SINGLE most appropriate next step in management?

- A.
Low molecular weight heparin
- B.**
Percutaneous intervention (PCI)
- C.
Warfarin
- D.
Streptokinase
- E.
Alteplase

Percutaneous intervention (PCI) would be the best management for myocardial infarction.

Myocardial infarction Summary:

- *If patient presents to hospital less than 90 minutes → Perform PCI*
- *If PCI not available within 90 minutes → Thrombolysis (Alteplase) is indicated*
- *Thrombolysis can only be done within 12 hours of symptom onset*
- *If thrombolysis is contraindicated → transfer to another hospital for PCI*
- *If PCI fails → Perform CABG within 12 hours of symptom onset*

Myocardial infarction:

Immediate and prompt revascularisation with percutaneous coronary intervention (PCI) within 90 minutes of first presentation, or thrombolysis within 12 hours of symptom onset

Primary PCI should be considered in patients presenting within 12 hours of symptom onset or in patients presenting after 12 hours but with ongoing ischaemia.

Thrombolysis is indicated if PCI is not available within 90 minutes of first medical contact and the patient has no contra-indications to thrombolytic therapy

Many hospitals have 24-hour PCI capacity; however, in facilities without catheterisation laboratories, routine transfer to a PCI facility should be considered for all patients within 30 minutes of presentation, and ideally within 30 minutes of symptom onset

Radial approach is preferable to femoral approach to minimise bleeding complications, if the operator is experienced in radial access

Emergency revascularisation with CABG should be strongly considered in patients who fail PCI, and should be performed within 12 hours of symptom onset, ideally within 6 hours

In patients with contraindications to thrombolysis, PCI is indicated even if it cannot occur within 90 minutes. Patients should be transferred for PCI as soon as possible.



25)	<p>A 52-year-old man underwent a hemicolectomy. A few days after his operation he develops chest pain and a temperature of 38.8°C. He is having rigors and night sweats. On auscultation, a systolic murmur is heard. What is the next SINGLE most appropriate investigation?</p> <p>A. Computed tomography scan of the chest</p> <p>B. Abdominal ultrasound</p> <p>C. Chest X-ray</p> <p>D. Blood culture</p> <p>E. Liver function test</p> <p><i>This is a case of infective endocarditis. The most appropriate investigation is blood cultures or echocardiogram. Since echocardiogram is not one of the options, blood cultures should be picked.</i></p> <p><i>Infective endocarditis:</i></p> <ul style="list-style-type: none">- Fever + new murmur = endocarditis until proven otherwise <p><i>Diagnosis: Infective endocarditis is diagnosed if:</i></p> <ul style="list-style-type: none">- 2 major criteria present, or- 1 major and 3 minor criteria present, or- 5 minor criteria present <p><i>Major criteria:</i></p> <ul style="list-style-type: none">- Positive blood cultures- Positive echocardiogram - showing abscess formation, new valvular regurgitation <p><i>Minor criteria:</i></p> <ul style="list-style-type: none">- IV Drug user, predisposing heart condition- Fever >38°C- Vascular phenomena: e.g. major emboli, clubbing, splinter haemorrhages, Janeway lesions- Immunological phenomena: glomerulonephritis, Osler's nodes, Roth spots- Microbiological evidence does not meet major criteria



26)	<p>A 33-year-old man complaints of occasional left sided chest pain that lasts less than 30 minutes following exercise. The pain is relieved once he takes a rest. What is the SINGLE most likely diagnosis?</p> <p>A. Unstable angina</p> <p>B. Decubitus angina</p> <p>C. Stable angina</p> <p>D. Coronary spasm</p> <p>E. Myocardial infarction</p> <p><i>Angina is chest pain or discomfort that is caused when heart muscle does not get enough blood. In, stable angina, the pain is precipitated by predictable factors like exercise. This is relieved by rest.</i></p>
27)	<p>A 71-year-old woman had sudden chest pain and shortness of breath 2 hours ago. The pain radiates to her left arm. There is ST elevation in the II, III and aVF on ECG. Oxygen has been started and she was given GTN which has improved her chest pain. Her heart rate is 80 bpm and respiratory rate is 18/min. What is the SINGLE most appropriate next step in management?</p> <p>A. Low molecular weight heparin</p> <p>B. Alteplase</p> <p>C. Warfarin</p> <p>D. Proton pump inhibitors</p> <p>E. Continue current management</p> <p><i>Percutaneous intervention (PCI) would be the best management for myocardial infarction. As PCI not given in the options. Thrombolysis would be the next best step. In terms of thrombolysis, alteplase is preferred over streptokinase in the NHS.</i></p> <p><i>Myocardial infarction Summary</i></p> <ul style="list-style-type: none">- If patient presents to hospital less than 90 minutes → Perform PCI- If PCI not available within 90 minutes → Thrombolysis (Alteplase) is indicated- Thrombolysis can only be done within 12 hours of symptom onset- If thrombolysis is contraindicated → transfer to another hospital for PCI- If PCI fails → Perform CABG within 12 hours of symptom onset <p><i>Myocardial infarction:</i></p>



	<p><i>Immediate and prompt revascularisation with percutaneous coronary intervention (PCI) within 90 minutes of first presentation, or thrombolysis within 12 hours of symptom onset</i></p> <p><i>Primary PCI should be considered in patients presenting within 12 hours of symptom onset or in patients presenting after 12 hours but with ongoing ischaemia.</i></p> <p><i>Thrombolysis is indicated if PCI is not available within 90 minutes of first medical contact and the patient has no contra-indications to thrombolytic therapy</i></p> <p><i>Many hospitals have 24-hour PCI capacity; however, in facilities without catheterisation laboratories, routine transfer to a PCI facility should be considered for all patients within 30 minutes of presentation, and ideally within 30 minutes of symptom onset</i></p> <p><i>Radial approach is preferable to femoral approach to minimise bleeding complications, if the operator is experienced in radial access</i></p> <p><i>Emergency revascularisation with CABG should be strongly considered in patients who fail PCI, and should be performed within 12 hours of symptom onset, ideally within 6 hours</i></p> <p><i>In patients with contraindications to thrombolysis, PCI is indicated even if it cannot occur within 90 minutes. Patients should be transferred for PCI as soon as possible.</i></p>
28)	<p>A 2-week-old baby has oxygen saturation of 70% on air. He is cyanosed and has an ejection systolic murmur. What is the SINGLE most likely diagnosis?</p> <p>A. Tetralogy of Fallot</p> <p>B. Atrial septal defect</p> <p>C. Patent ductus arteriosus</p> <p>D. Transposition of great arteries</p> <p>E. Ventricular septal defect</p> <p><i>Tetralogy of Fallot is the most likely diagnosis here. It usually presents with an ejection systolic murmur. The low oxygen saturation and cyanosis are consistent with Tetralogy of Fallot.</i></p> <p><i>Tetralogy of Fallot (TOF)</i></p> <ul style="list-style-type: none">- The most common cause of cyanotic congenital heart disease.- Typically presents at around 1-2 months, although may not be picked up until the baby is 6 months old <p><i>The four characteristic features are:</i></p> <ul style="list-style-type: none">- Ventricular septal defect (VSD)- Right ventricular hypertrophy



	<ul style="list-style-type: none">- Pulmonary stenosis- Overriding aorta <p><i>Other features:</i></p> <ul style="list-style-type: none">- Cyanosis- Causes a right-to-left shunt- Ejection systolic murmur due to pulmonary stenosis (the VSD does not usually cause a murmur)- A right-sided aortic arch is seen in 25% of patients- Chest x-ray shows a 'boot-shaped' heart, ECG shows right ventricular hypertrophy
29)	<p>A 58-year-old man suddenly becomes shocked several days after suffering an acute myocardial infarction. His chest X-ray shows a large globular shaped heart and clear lung fields. His neck veins look distended. What is the SINGLE most likely diagnosis?</p> <p>A. Acute pericarditis</p> <p>B. Atrial thrombus</p> <p>C. Cardiac tamponade</p> <p>D. Heart block</p> <p>E. Left ventricular aneurysm</p> <p><i>A myocardial infarction can cause acute pericarditis which can lead to pericardial effusion. A chest X-ray shows an enlarged globular heart at this stage. A pericardial effusion of significant amount can cause cardiac tamponade which shows up as signs of shock. One can expect his blood pressure to be low and his JVP to be high.</i></p>
30)	<p>A 60-year-old man had a myocardial infarction 2 weeks ago. He now presents with dyspnoea and chest pain. A pericardial friction rub was noticed on examination. ECG shows widespread ST elevation. A Chest X-ray shows an enlarged, globular heart. His pulse rate is 95 bpm and his respiratory rate is 24/min. What is the SINGLE most likely cause of his symptoms?</p> <p>A. Cardiac tamponade</p> <p>B. Mitral regurgitation</p> <p>C. Dressler's syndrome</p> <p>D. Atrial fibrillation</p> <p>E. Pulmonary Embolism</p> <p><i>The widespread ST elevation and pericardial friction rub is seen in pericarditis. The Chest X-ray</i></p>



	<p><i>showing an enlarged, globular heart points towards pericardial effusion. Dressler's syndrome would explain all the findings.</i></p> <p><i>Dressler's syndrome tends to occur around 2-6 weeks following a MI. The underlying pathophysiology is thought to be an autoimmune reaction against antigenic proteins formed as the myocardium recovers. It is characterised by a combination of fever, pleuritic pain, pericardial effusion and a raised ESR. It is treated with NSAIDs.</i></p>
31)	<p>A 58-year-old man with a history of type 1 diabetes mellitus and hypertension for 13 years develops sudden central chest pain for 45 minutes. The pain started while he was driving and it was associated with cold sweating and dyspnoea. He describes the pain as a burning pain. What is the SINGLE most likely diagnosis?</p> <p>A. Myocardial Infarction</p> <p>B. Pericarditis</p> <p>C. Pulmonary embolism</p> <p>D. Costochondritis</p> <p>E. Pneumothorax</p> <p><i>This is clear that this is a myocardial infarction.</i></p> <ul style="list-style-type: none">- <i>In pericarditis, the pain is aggravated by inspiration or lying flat and relieved by leaning forward. Pericardial rub may present and there may be fever.</i>- <i>In pulmonary embolism, patients would present with dyspnoea and pleuritic chest pain. The writers of the exam would also give other hints like having a history of immobilization or a long travel.</i>- <i>In costochondritis, the pain is localized at the costochondral junction which is enhanced by motion, coughing, or sneezing. The writers would usually give a history of repeated minor chest injury or activities that one is unused to - perhaps decorating or moving furniture.</i>- <i>In pneumothorax, the pain is not central but pleuritic and there are no signs that indicate that this is pneumothorax in the given question</i> <p><i>The given picture of central chest pain for 45 minutes (more than 30 minutes), sweating and dyspnoea with major risk factor of diabetes mellitus and hypertension suggest the diagnosis of myocardial infarction.</i></p> <p><i>Acute Myocardial Infarction</i></p>



	<p><i>Presentation: Chest pain (central chest pain may not be the main symptom):</i></p> <ul style="list-style-type: none">- Three quarters of patients present with characteristic central or epigastric chest pain radiating to the arms, shoulders, neck, or jaw.- The pain is described as substernal pressure, squeezing, aching, burning, or even sharp pain.- Radiation to the left arm or neck is common.- Chest pain may be associated with sweating, nausea, vomiting, dyspnoea, fatigue and/or palpitations.- Shortness of breath: may be the patient's anginal equivalent or a symptom of heart failure.- Atypical presentations are common and tend to be seen in women, older men, people with diabetes and people from ethnic minorities. Atypical symptoms include abdominal discomfort or jaw pain; elderly patients may present with altered mental state.
32)	<p>A 54-year-old man has a temperature of 39°C, a new murmur and cardiac failure. He had a dental extraction several of days ago. What is the SINGLE most likely reason for his symptoms?</p> <p>A. Atheroma B. Congenital C. Regeneration of tissue D. Infection E. Neoplasm</p> <p><i>Signs and consistent with infective endocarditis. Dental extraction is a known source of infection causing bacteraemia.</i></p> <p><i>Infective endocarditis:</i></p> <ul style="list-style-type: none">- Fever + new murmur = endocarditis until proven otherwise <p><i>Risk factors:</i></p> <ul style="list-style-type: none">- Valve replacement- Recreational drug abuse and invasive vascular procedures <p><i>Note: Dentistry interventions are a common cause of bacteraemia leading to infective endocarditis</i></p> <p><i>Cause:</i></p> <ul style="list-style-type: none">- <i>Strep viridans is a common cause (more than 35%)</i> <p><i>Presentation:</i></p> <ul style="list-style-type: none">- <i>Septic signs: Fever, rigors, night sweats, malaise</i>



	<ul style="list-style-type: none">- <i>Cardiac lesion: New murmur</i>- <i>Immune complex deposition: Roth spots (boat-shaped retinal haemorrhage with pale centre); splinter haemorrhages, Osler's nodes (painful pulp infarcts in fingers or toes)</i>- <i>Embolic phenomena: e.g. Janeway lesions (painless palmar or plantar macules)</i> <p><i>Some patients may present with congestive cardiac failure</i></p>
33)	<p>A 50-year-old man with diabetes mellitus suddenly develops persistent crushing central chest pain radiating to the neck and arm when he was driving. He has a pulse of 122 beats/minute, a blood pressure of 110/70 mmHg and a respiratory rate of 34 breaths/minute. What is the SINGLE most likely diagnosis?</p> <p>A. Angina B. Costochondritis C. Dissecting aneurysm D. Myocardial Infarction E. Pulmonary embolism</p> <p>Presentation: Chest pain (central chest pain may not be the main symptom):</p> <ul style="list-style-type: none">- Three quarters of patients present with characteristic central or epigastric chest pain radiating to the arms, shoulders, neck, or jaw.- The pain is described as substernal pressure, squeezing, aching, burning, or even sharp pain.- Radiation to the left arm or neck is common.- Chest pain may be associated with sweating, nausea, vomiting, dyspnoea, fatigue and/or palpitations.- Shortness of breath: may be the patient's anginal equivalent or a symptom of heart failure.- Atypical presentations are common and tend to be seen in women, older men, people with diabetes and people from ethnic minorities. Atypical symptoms include abdominal discomfort or jaw pain; elderly patients may present with altered mental state.
34)	<p>A 46-year-old African-Caribbean man is found to have blood pressure of 160/90 mmHg on 3 separate occasions. What is the SINGLE most appropriate initial treatment?</p> <p>A. ACE inhibitors B. Beta-blockers C. Angiotensin II receptor blockers D. Thiazide diuretics E. Calcium channel blockers</p>



Since patient has Afro-Caribbean origins calcium channel blockers would be the best antihypertensive medication to start.

Afro-Caribbean's tend to develop low-renin, salt sensitive type hypertension. Monotherapy for hypertension with beta-blockers or ACE inhibitors are less effective than calcium channel blockers in this particular ethnicity.

Main simplified points on Hypertension Management

Classification:

- 1. Stage 1 hypertension*
 - Clinic BP \geq 140/90 mmHg and subsequent ambulatory blood pressure monitoring (ABPM) daytime average or home blood pressure monitoring (HBPM) average BP \geq 135/85 mmHg*
- 2. Stage 2 hypertension*
 - Clinic BP \geq 160/100 mmHg and subsequent ambulatory blood pressure monitoring (ABPM) daytime average or home blood pressure monitoring (HBPM) average BP \geq 150/95 mmHg*
- 3. Severe hypertension*
 - Clinic systolic BP \geq 180 mmHg, or clinic diastolic BP \geq 110 mmHg*

Management:

- 1. For Stage 1 hypertension*
 - Treat if $<$ 80 years of age and has target organ damage*
- 2. For Stage 2 hypertension*
 - Treat*
- 3. If hypertensive patient less than 55 years old*
 - Treat with ACE inhibitor*
- 4. If hypertensive patient more than 55 years old OR of Afro-Caribbean origin*
 - Treat with calcium channel blocker*

Drug treatment of essential hypertension can be summarised as follows:

Step 1; Age $<$ 55 - ACE inhibitor. Age $>$ 55 or of black African or Caribbean origin - calcium channel blocker

Step 2; ACE inhibitor + calcium channel blocker

Step 3; ACE inhibitor + calcium channel blocker + thiazide-like diuretic



35)	<p>A 66-year-old man with a history of hypertension presents to A&E with sudden, severe lower abdominal pain and back pain. A tender pulsatile abdominal mass is palpated lateral and superior to the umbilicus. His heart rate is 110/min and blood pressure is 80/50 mmHg. What is the SINGLE most appropriate investigation?</p> <p>Plab Lab Values</p> <p>A. Laparoscopy B. X-ray KUB C. Ultrasound pelvis D. Sigmoidoscopy E. Ultrasound abdomen</p> <p><i>This is a classic picture of a ruptured abdominal aneurysm.</i></p> <p><i>An ultrasound scan is the only appropriate investigation given the options.</i></p> <p><i>Questions would usually have either an ultrasound or CT abdomen as one of the choices for a ruptured aortic aneurysm. Both choices are correct. It is important to note that both USS or CT scan can be performed. Although, it may be safer and quicker to perform USS in the ED, rather than transfer the patient for CT scan.</i></p>
36)	<p>A 69-year-old woman had sudden chest pain and shortness of breath 2 hours ago. ECG shows ST elevation in leads I, II, III. Oxygen has been started and she was given GTN which has improved her chest pain. Her heart rate is 70 bpm and respiratory rate is 18/min. What is the SINGLE most appropriate next step in management?</p> <p>A. Low molecular weight heparin B. Streptokinase C. Warfarin D. Proton pump inhibitors E. Continue current management</p> <p><i>Percutaneous intervention (PCI) would be the best management for myocardial infarction. As PCI not given in the options. Thrombolysis would be the next best step. In terms of thrombolysis, Alteplase is preferred over streptokinase in the NHS. However, alteplase is not given in the options thus the best option would be option B. (streptokinase).</i></p>



	<p><i>Myocardial infarction Summary:</i></p> <ul style="list-style-type: none">- If patient presents to hospital less than 90 minutes → Perform PCI- If PCI not available within 90 minutes → Thrombolysis (Alteplase) is indicated- Thrombolysis can only be done within 12 hours of symptom onset- If thrombolysis is contraindicated → transfer to another hospital for PCI- If PCI fails → Perform CABG within 12 hours of symptom onset <p><i>Myocardial infarction:</i> <i>Immediate and prompt revascularisation with percutaneous coronary intervention (PCI) within 90 minutes of first presentation, or thrombolysis within 12 hours of symptom onset</i></p> <p><i>Primary PCI should be considered in patients presenting within 12 hours of symptom onset or in patients presenting after 12 hours but with ongoing ischaemia.</i></p> <p><i>Thrombolysis is indicated if PCI is not available within 90 minutes of first medical contact and the patient has no contra-indications to thrombolytic therapy</i></p> <p><i>Many hospitals have 24-hour PCI capacity; however, in facilities without catheterisation laboratories, routine transfer to a PCI facility should be considered for all patients within 30 minutes of presentation, and ideally within 30 minutes of symptom onset</i></p> <p><i>Radial approach is preferable to femoral approach to minimise bleeding complications, if the operator is experienced in radial access</i></p> <p><i>Emergency revascularisation with CABG should be strongly considered in patients who fail PCI, and should be performed within 12 hours of symptom onset, ideally within 6 hours</i></p> <p><i>In patients with contraindications to thrombolysis, PCI is indicated even if it cannot occur within 90 minutes. Patients should be transferred for PCI as soon as possible.</i></p>
37)	<p>A 57-year-old woman who is suffering from hypertension, presents to the hospital with complaints of recurrent falls when trying to get out of bed or getting up from sitting. She is on antihypertensive therapy with no other medical problems. What is the SINGLE most likely cause of her falls?</p> <p>A. Calcium channel blockers B. Vertebrobasilar insufficiency C. Thiazide D. Hypoglycemia E. Pneumonia</p> <p><i>One of the many known adverse effects of thiazides is postural hypotension.</i></p> <p><i>Common adverse effects of thiazides worth remembering include:</i></p> <ul style="list-style-type: none">- Postural hypotension



	<ul style="list-style-type: none">- Hyponatraemia, hypokalaemia- Gout <p><i>Postural hypotension (Orthostatic hypotension)</i> <i>Postural hypotension should always be considered in an elderly patient especially if he is on multiple medications and presents with dizziness. The baroreflex mechanisms which control heart rate and vascular resistance decline with age (particularly in patients with hypertension) who thus display lability in BP. They are particularly prone to postural hypotension and to the effects of drugs.</i></p> <p><i>It may present with dizziness or sudden loss of consciousness after getting up from chair, with recovery within a minute</i></p> <p><i>Diagnosis:</i></p> <ul style="list-style-type: none">- Blood pressure taken when lying down and standing up <p><i>Postural hypotension is defined as a drop-in BP of more than 20 mmHg after 3 minutes of standing.</i></p>
38)	<p>A 55-year-old woman was found collapsed at home. The paramedics revived her but in the ambulance, she had a cardiac arrest and could not be saved. The paramedic's report states that the woman was immobile lately due to hip pain and that they found ulcers on the medial side of ankle. She has a history of diabetes mellitus and was on anti-diabetics. What is the likely cause of her death?</p> <p>A. Acute Myocardial infarction</p> <p>B. Diabetic ketoacidosis</p> <p>C. Pulmonary embolism</p> <p>D. Acute pericarditis</p> <p>E. Cardiac tamponade</p> <p><i>This is a very debatable question. The two top choices here are acute myocardial infarction (a silent MI) or pulmonary embolism due to immobilization which may resulted in deep vein thrombosis. Acute myocardial infarction fits well because a silent myocardial infarction is seen in diabetics. It can be painless as the patient can develop autonomic neuropathy. If one does not feel pain, she might not call for help. As this progress, she collapses and dies. We call this a "silent MI". Given the history of immobilization, pulmonary embolism can be suspected as well. However, given the two choices, a silent MI (acute myocardial infarction) is more likely the answer, as if she were to develop PE, she would have shortness of breath and would have called the ambulance instead.</i></p>



39) A 58-year-old woman with a history of type 1 diabetes mellitus suddenly develops chest and abdominal pain. The pain started when she was watching television. It was associated with nausea, vomiting, dyspnoea, and palpitations. She describes the pain as dull and burning. What is the SINGLE most likely diagnosis?

**A.
Myocardial Infarction**

B.
Pericarditis

C.
Pulmonary embolism

D.
Costochondritis

E.
Pneumothorax

Atypical presentations of myocardial infarction are common. They may present with abdominal pain like in the question above. The reason the question gives a female with diabetes is because atypical presentations tend to be seen more commonly in women or people with diabetes. Atypical symptoms include abdominal discomfort or jaw pain. The remaining symptoms are quite characteristic of myocardial infarction.

- *In pericarditis, the pain is aggravated by inspiration or lying flat and relieved by leaning forward. Pericardial rub may present and there may be fever.*
- *In pulmonary embolism, patients would present with dyspnoea and pleuritic chest pain. The writers of the exam would also give other hints like having a history of immobilization or a long travel.*
- *In costochondritis, the pain is localized at the costochondral junction which is enhanced by motion, coughing, or sneezing. The writers would usually give a history of repeated minor chest injury or activities that one is unused to - perhaps decorating or moving furniture.*
- *There are no signs that indicate that this is pneumothorax*

Acute Myocardial Infarction: Presentation: Chest pain (central chest pain may not be the main symptom):

- *Three quarters of patients present with characteristic central or epigastric chest pain radiating to the arms, shoulders, neck, or jaw.*
- *The pain is described as substernal pressure, squeezing, aching, burning, or even sharp pain.*
- *Radiation to the left arm or neck is common.*
- *Chest pain may be associated with sweating, nausea, vomiting, dyspnoea, fatigue and/or palpitations.*
- *Shortness of breath: may be the patient's anginal equivalent or a symptom of heart failure.*



	<ul style="list-style-type: none">- <i>Atypical presentations are common and tend to be seen in women, older men, people with diabetes and people from ethnic minorities. Atypical symptoms include abdominal discomfort or jaw pain; elderly patients may present with altered mental state.</i>
40)	<p>A 58-year-old woman presents to A&E with a fall. From her records, you noticed that she has a few attendances to A&E in the last few months resulting from recurrent falls. On examination, she looks slightly pale and she jokes that she is clumsier nowadays. Her medical history included asthma, hypertension and a previous myocardial infarction. She regularly takes Salbutamol inhaler, QVAR inhaler, Amlodipine, Aspirin, Atenolol, and Bendroflumethiazide. What is the SINGLE most appropriate investigation to be carried out?</p> <p>A. 24 hours ECG</p> <p>B. Blood pressure monitoring</p> <p>C. Peak flow meter</p> <p>D. Echo</p> <p>E. Computed tomography head</p> <p><i>Her regular medications include multiple blood pressure lowering agents (amlodipine, atenolol, bendroflumethiazide) which are known to cause postural hypotension. Blood pressure monitoring would be most appropriate in this scenario to assess and review her medication therapy.</i></p> <p><i>Postural hypotension (Orthostatic hypotension)</i> <i>Postural hypotension should always be considered in an elderly patient especially if he is on multiple medications and presents with dizziness. The baroreflex mechanisms which control heart rate and vascular resistance decline with age (particularly in patients with hypertension) who thus display lability in BP. They are particularly prone to postural hypotension and to the effects of drugs.</i></p> <p><i>It may present with dizziness or sudden loss of consciousness after getting up from chair, with recovery within a minute</i></p> <p><i>Diagnosis:</i></p> <ul style="list-style-type: none">- <i>Blood pressure taken when lying down and standing up</i> <p><i>Postural hypotension is defined as a drop-in BP of more than 20 mmHg after 3 minutes of standing.</i></p>



41)	<p>A 72-year-old man is found to be unresponsive. The ward doctor is called to the patient's bedside. He is not breathing and has no detectable pulse. Which is the SINGLE most appropriate next step?</p> <p>A. Get a defibrillator</p> <p>B. Give two rescue breaths immediately</p> <p>C. Call resuscitation team</p> <p>D. Insert two wide-bore cannulas into each antecubital fossa</p> <p>E. Start chest compressions at a rate of 30:2</p> <p><i>This man has had a cardiac arrest. The resuscitation guidelines state that if there are no signs of life, call the resuscitation team.</i></p> <p><i>Basic life support is an important topic for PLAB part 1. Be sure to know the sequence of management's. Resus.org.uk have very good simplified algorithm. Memorize those.</i></p> <p><i>The other choices in this question are less appropriate</i></p> <p><i>Get a defibrillator → The guidelines mention start CPR and send for a defibrillator as soon as possible. But given the choice, calling the resuscitation team would come first.</i></p> <p><i>Give two rescue breaths immediately → will always be the wrong answer as it was part of the old guidelines.</i></p> <p><i>Insert two wide-bore cannulas into each antecubital fossa → The man has no cardiac output and, although inserting wide-bore cannulas into each antecubital fossa is indicated, this should not be the first thing to do.</i></p> <p><i>Start chest compressions at a rate of 30:2 → Would be started immediately once the resuscitation team has been called.</i></p>
42)	<p>A 55-year-old man was brought to the emergency department from a shopping mall after collapsing 2 hours ago. He is now fully conscious and answering questions. His ECG shows an irregular rhythm. His blood pressure is 120/80 mmHg. What is the SINGLE most appropriate investigation to carry out?</p> <p>A. CT</p> <p>B. MRI</p> <p>C. 24 hours ECG</p> <p>D. Echocardiogram</p> <p>E. Exercise testing</p>



Echocardiogram would be the best option here. It is used to identify structural cardiac abnormalities and assess left ventricular function. It may show a clot in the atrial appendage responsible for syncope which could be due to a transient ischaemic attack secondary to atrial fibrillation.

The most common valvular cause for a syncope is aortic stenosis which needs an echocardiogram to diagnose it.

A holter ECG (24-hour ECG) is not needed as the ECG is already said to have an irregular rhythm. If they did not state that the rhythm was irregular, then 24-hour ECG would be an option.

CT and MRI may be performed in selected cases (eg, aortic dissection and haematoma, pulmonary embolism, cardiac masses, pericardial and myocardial diseases, congenital anomalies of coronary arteries). However, as he has recovered fully. It is unlikely to be any of the causes requiring a CT or MRI.

Exercise testing is for patients who have experienced episodes of syncope during or shortly after exertion. There was no mention of exertion in this question.

43) A 69-year-old man has the following ECG. What is the SINGLE most appropriate next step in



management?

- A.**
Metoprolol
- B.
Digoxin
- C.
Carotid sinus massage
- D.
Adenosine
- E.
Amiodarone

The diagnosis here is atrial fibrillation. This man is an elderly man and thus rate control should be the first option (beta blockers, calcium channel blockers or digoxin). Digoxin should be reserved for when patient is having atrial fibrillation and heart failure together thus it is not the first option here.



	<p><i>These are the general rules for atrial fibrillation</i></p> <p><i>Rate control: BB or CCB or Digoxin</i></p> <p><i>Rhythm control: Amiodarone OR electrical</i></p> <p><i>Rate control: BB or CCB or Digoxin ---> if symptoms are not well controlled ---> use combination therapy: BB, CCB (diltiazem), Digoxin.</i></p> <p><i>Rhythm control is preferred in paroxysmal atrial fibrillation, young patients, symptomatic, younger patients presenting for first time.</i></p> <p><i>If new onset atrial fibrillation + haemodynamic unstable → Emergency Electrical Cardioversion.</i></p>
44)	<p>A 66-year-old man has presented to the emergency department with a stroke. CT shows no haemorrhage. ECG shows atrial fibrillation. He has been thrombolysed and he is awaiting discharge. He has no other medical conditions. What is the SINGLE best prophylactic regimen for him?</p> <p>A. Warfarin</p> <p>B. Heparin</p> <p>C. Aspirin</p> <p>D. Statins</p> <p>E. Beta blockers</p> <p><i>Warfarin would be the best choice in this case given that he has atrial fibrillation which could cause another stroke. If atrial fibrillation was not included in this question, then the answer would be aspirin for 2 weeks and clopidogrel long term for stroke prevention.</i></p> <p><i>NICE updated their guidelines on the management of atrial fibrillation (AF) in 2014. They suggest using the CHA2DS2-VASc score to determine the most appropriate anticoagulation strategy. This scoring system superseded the CHADS2 score.</i></p> <p><i>As this patient has had a stroke and his age is between 65-74 years, this gives him a CHA2DS2-VASc score of 3. In general, we offer anticoagulation if the CHA2DS2-VASc score is 2 or more.</i></p>



45)	<p>A 65-year-old man has chest pain. On initial assessment, he is noted to be pale. An ECG reveals no connection between P waves and QRS complexes with a rate of 42 beats/minute. What is the SINGLE most likely diagnosis?</p> <p>A. Complete heart block</p> <p>B. Ventricular tachycardia</p> <p>C. First degree heart block</p> <p>D. Mobitz type I AV block</p> <p>E. Mobitz type II AV block</p>
46)	<p>A 6-week-old baby presents with the following features of progressive cyanosis, poor feeding, tachypnoea during the first two weeks of life. A holosystolic murmur is heard. What is the SINGLE most likely diagnosis?</p> <p>A. Atrial septal defect</p> <p>B. Ventricular septal defect</p> <p>C. Tricuspid atresia</p> <p>D. Patent ductus arteriosus</p> <p>E. Tetralogy of Fallot</p> <p><i>The most common cyanotic heart conditions presenting in the neonatal period are referred to as "The five T's"</i></p> <ol style="list-style-type: none"><i>1. Tetralogy of Fallot (TOF)</i><i>2. Transposition of the Great Arteries (TGA)</i><i>3. Truncus Arteriosus</i><i>4. Tricuspid Atresia</i><i>5. Total Anomalous Pulmonary Venous Connection (TAPVC)</i> <p><i>By using the above mnemonic, we are down to 2 options: Tricuspid atresia or Tetralogy of Fallot.</i></p> <p><i>Tricuspid atresia → manifests early in life with severe cyanosis. Holosystolic murmurs is found along the left sternal border (Most have VSD)</i></p> <p><i>Tetralogy of Fallot → Can also happen at birth but the symptoms depends on the severity. Ejection systolic murmur due to pulmonary stenosis is the common murmur to be heard.</i></p>



47)	<p>A 50-year-old smoker and heavy drinker presents with complaints of a racing heart. He has no chest pain. The palpitations usually occur when he drinks alcohol or when he exercises. He has no significant past medical history. A 24 hours ECG is shown to be normal. What is the SINGLE most appropriate action?</p> <p>A. Echocardiogram B. Reassure C. Exercise stress test D. 24 hour BP monitoring E. Fasting blood glucose</p> <p><i>A racing heart or palpitation is a common phenomenon in alcoholics which is not serious or harmful. So reassure the patient.</i></p>
48)	<p>A 65-year-old man continues to experience chest pain 2 days after an acute myocardial infarction. He has a temperature of 37.8°C. His ECG shows widespread ST elevation with upward concavity. What is the SINGLE most likely diagnosis?</p> <p>A. Acute pericarditis B. Cardiac tamponade C. Atrial thrombus D. Left ventricular aneurysm E. Dressler syndrome</p> <p><i>Chest pain and ECG findings of widespread ST elevation with an upwards concavity is diagnostic of acute pericarditis. The history of a myocardial infarction supports this as one of the causes of acute pericarditis is a recent myocardial infarction.</i></p> <p><i>Fever, night sweats, and other constitutional symptoms may be present, depending on the underlying cause.</i></p> <p><i>Acute pericarditis</i></p> <p><i>Features:</i></p> <ul style="list-style-type: none">- Chest pain is described as sharp, stabbing, central chest pain, with radiation to the shoulders and upper arm- Chest pain may be pleuritic and is often relieved by sitting forwards



	<ul style="list-style-type: none">- Chest pain may be made worse by inspiration, cough, swallowing, or movement of the trunk- Other symptoms include non-productive cough and dyspnoea- Pericardial friction rub on auscultation (Clinically, the presence of a pericardial friction rub is pathognomonic - often a rub can be heard even when a pericardial effusion is present) <p>Causes:</p> <ul style="list-style-type: none">- Viral infections (Coxsackie)- Tuberculosis- Uraemia (causes 'fibrinous' pericarditis)- Trauma- Post-myocardial infarction, Dressler's syndrome- Connective tissue disease <p>Post myocardial infarction is an extremely important cause to remember for the exam.</p> <p>ECG changes:</p> <ul style="list-style-type: none">- Widespread 'saddle-shaped' ST elevation (Saddle-shaped meaning concavity directed upwards)- PR segment depression.
49)	<p>A 42-year-old man collapsed and died at home. The GP's report states that he has type 2 diabetes and has a BMI of 35. What is the SINGLE most likely cause of death?</p> <p>A. Myocardial Infarction</p> <p>B. Hyperglycaemia</p> <p>C. Heart Failure</p> <p>D. Pulmonary Embolism</p> <p>E. Renal failure</p> <p>Although there are risk factors for myocardial infarction and pulmonary embolism, it is more likely a myocardial infarction that killed this man because in diabetics, myocardial infarction can be painless as the patient can develop autonomic neuropathy. We call this a "silent MI". If one does not feel pain, he might not call for help. As this progresses, he collapses and dies.</p>



50) A 76-year-old diabetic man was recently admitted after being found to be in atrial fibrillation. This was his second episode of atrial fibrillation. He has no other medical problems. What is the SINGLE most appropriate management?

- A.
Aspirin
- B.
Warfarin**
- C.
Clopidogrel
- D.
Heparin
- E.
Statins

Anticoagulation using warfarin is the most appropriate. He has a high risk of stroke.

NICE suggest using the CHA2DS2-VASc score to determine the most appropriate anticoagulation strategy for atrial fibrillation. The CHA2DS2VASc score tool is used to assess a person's stroke risk. Offer anticoagulation treatment to all people with a CHA2DS2VASc score of 2 or above, and consider offering it to men with a CHA2DS2VASc score of 1.

	Risk factor	Points
C	Congestive heart failure	1
H	Hypertension (or treated hypertension)	1
A2	Age \geq 75 years	2
	Age 65-74 years	1
D	Diabetes	1
S2	Prior Stroke or TIA	2
V	Vascular disease (including ischaemic heart disease and peripheral arterial disease)	1
S	Sex (female)	1



51)	<p>A 60-year-old man presents with a history of sudden chest pain which radiates to his jaw accompanied by shortness of breath which started 2 hours ago. An ECG was done which shows a normal sinus rhythm without ST elevation. What is the SINGLE most appropriate investigation?</p> <p>A. Cardiac troponins</p> <p>B. Chest X-ray</p> <p>C. Echocardiogram</p> <p>D. Holter ECG</p> <p>E. Exercise stress test</p> <p><i>We are suspecting a myocardial infarction in this patient. Cardiac enzymes would need to be ordered. Measurement of cardiac troponins helps to predict which patients are at risk of a cardiac event, and who can be safely discharged early.</i></p> <p><i>The risk of death from an ACS is directly related to troponin level and patients with no detectable troponins have a good short-term prognosis. Serum levels increase within 3-12 hours from the onset of chest pain, peak at 24-48 hours, and return to baseline over 5-14 days. Troponin levels may therefore be normal initially and should be repeated.</i></p> <p><i>Myocardial muscle creatine kinase (CK-MB) is found mainly in the heart. CK-MB levels increase within 3-12 hours of onset of chest pain, reach peak values within 24 hours and return to baseline after 48-72 hours. Sensitivity and specificity are not as high as for troponin levels.</i></p>
52)	<p>A 47-year-old man with history of a myocardial infarction complains of chest pain with shortness of breath on exertion over the past few days. ECG was shown to be normal. Echocardiogram shows decreased ejection fraction and decreased septal wall thickness. What is the SINGLE most likely diagnosis?</p> <p>A. Dilated cardiomyopathy</p> <p>B. Constrictive pericarditis</p> <p>C. Amyloidosis</p> <p>D. Subacute endocarditis</p> <p>E. Pericarditis</p> <p><i>Although in many cases no cause is apparent, dilated cardiomyopathy is probably the result of damage to the myocardium. In this case, it was due to the fibrous change of the myocardium</i></p>



	<p><i>from a previous myocardial infarction. This is supported by the decreased ejection fraction and thinning of the septal walls seen on an echocardiogram.</i></p> <p><i>Dilated cardiomyopathy</i></p> <ul style="list-style-type: none">- <i>A disorder of heart muscle characterized by left ventricular and/or right ventricular dilation and impairment of systolic function</i> <p><i>Presentation:</i></p> <ul style="list-style-type: none">- <i>Presents as congestive heart failure:</i>- <i>Dyspnoea</i>- <i>Oedema</i>- <i>Raised JVP</i>- <i>Pulmonary congestion</i>- <i>Cardiomegaly</i>
53)	<p>An 18-year-old man complains of fatigue and dyspnoea. On examination, he has a left parasternal heave and systolic thrill with a harsh pan-systolic murmur at left parasternal edge. What is the SINGLE most likely diagnosis?</p> <p>A. Tetralogy of Fallot</p> <p>B. Atrial septal defect</p> <p>C. Ventricular septal defect</p> <p>D. Patent ductus arteriosus</p> <p>E. Transposition of the great arteries</p> <p>A key mnemonic that can help you get through PLAB part 1 cardio questions is:</p> <p>Pan-systolic → MR, TR, VSD</p> <p>Hence, when you see the words pan-systolic murmur in the question, straight away, you can cut out any options that ARE NOT mitral regurgitation, tricuspid regurgitation and ventricular septal defect.</p> <p>In this question, the phrase pan-systolic murmur already gives you the answer which is VSD.</p> <p>Ventricular septal defect</p> <ul style="list-style-type: none">- Basically, a hole connecting the ventricles <p>Causes:</p> <ul style="list-style-type: none">- Congenital- Acquired (post-MI)



Symptoms:

- May present with severe heart failure in infancy, or remain asymptomatic and be detected incidentally in later life.

Signs: These depend on size and site:

1. Small holes

- Infant or child is asymptomatic with normal feeding and weight gain
- May be detected when a murmur is heard on routine examination
- Give louder murmurs
- Classically, a harsh pan-systolic murmur heard at the left sternal edge, with a systolic thrill, and a left parasternal heave

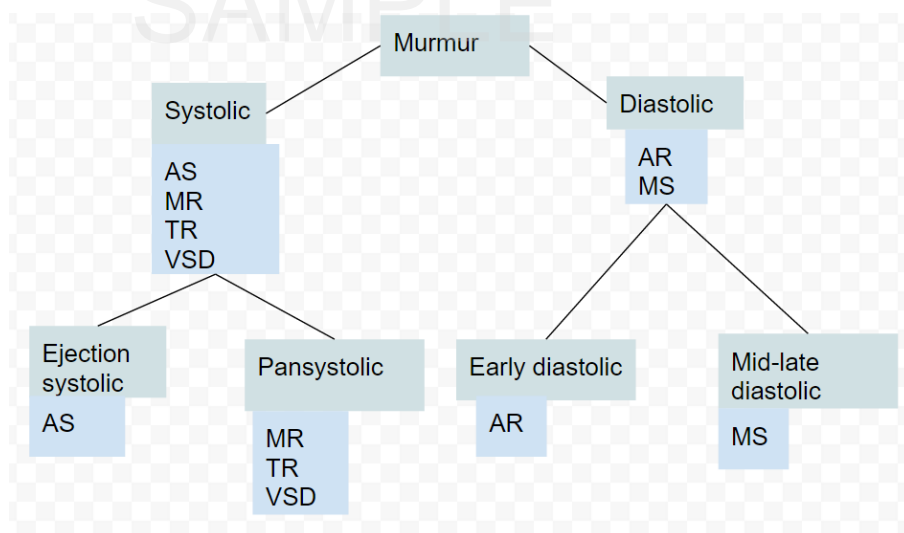
Most importantly is to remember the term “pan-systolic murmur” as often that alone can give you the answer provided mitral regurgitation and tricuspid regurgitation are not one of the options.

2. Large holes

- Associated with signs of pulmonary hypertension
- These babies may develop a right to left shunt with cyanosis or Eisenmenger's syndrome

The diagnosis and management → Not so important for the exam

A memory flow chart to help you easily differentiate murmurs





54)	<p>A 42-year-old lady had corrective surgery for cyanotic congenital heart disease at the age of 3 after having a palliative operation during infancy. On examination, a parasternal heave and a diastolic murmur at the left upper sternal age is noted. What is the SINGLE most likely diagnosis?</p> <p>A. Aortic regurgitation B. Mitral regurgitation C. Aortic stenosis D. Pulmonary stenosis E. Pulmonary regurgitation</p> <p><i>Pulmonary regurgitation is a common complication after surgical or percutaneous relief of pulmonary stenosis and following repair of Fallot's tetralogy. Pulmonary regurgitation is usually asymptomatic unless severe, when it may lead to signs of right heart failure. It is possible for patients to live for many decades following surgical repair of tetralogy of Fallot but a major problem encountered is the development of pulmonary regurgitation which may require pulmonary valve replacement.</i></p>
55)	<p>A 45-year-old man has shortness of breath and palpitations. He has a pulse of 142 beats/minute, a blood pressure of 110/80 mmHg and a respiratory rate of 20 breaths/minute. Carotid sinus massage was attempted but he is still tachycardic. What is the SINGLE most appropriate next management?</p> <p>A. Adenosine B. Amlodipine C. DC cardioversion D. Lidocaine E. Beta blocker</p>



56) A 69-year-old hypertensive white british man is currently on Indapamide 2.5mg daily but his blood pressure is still high. Which of the following is the SINGLE best choice to add in order to control his blood pressure?

- A.
Increase dose of diuretic to 5mg daily
- B.
Enalapril (ACE inhibitor)**
- C.
Atenolol (Beta blocker)
- D.
Amlodipine (Calcium channel blocker)
- E.
Prazosin (Alpha blocker)

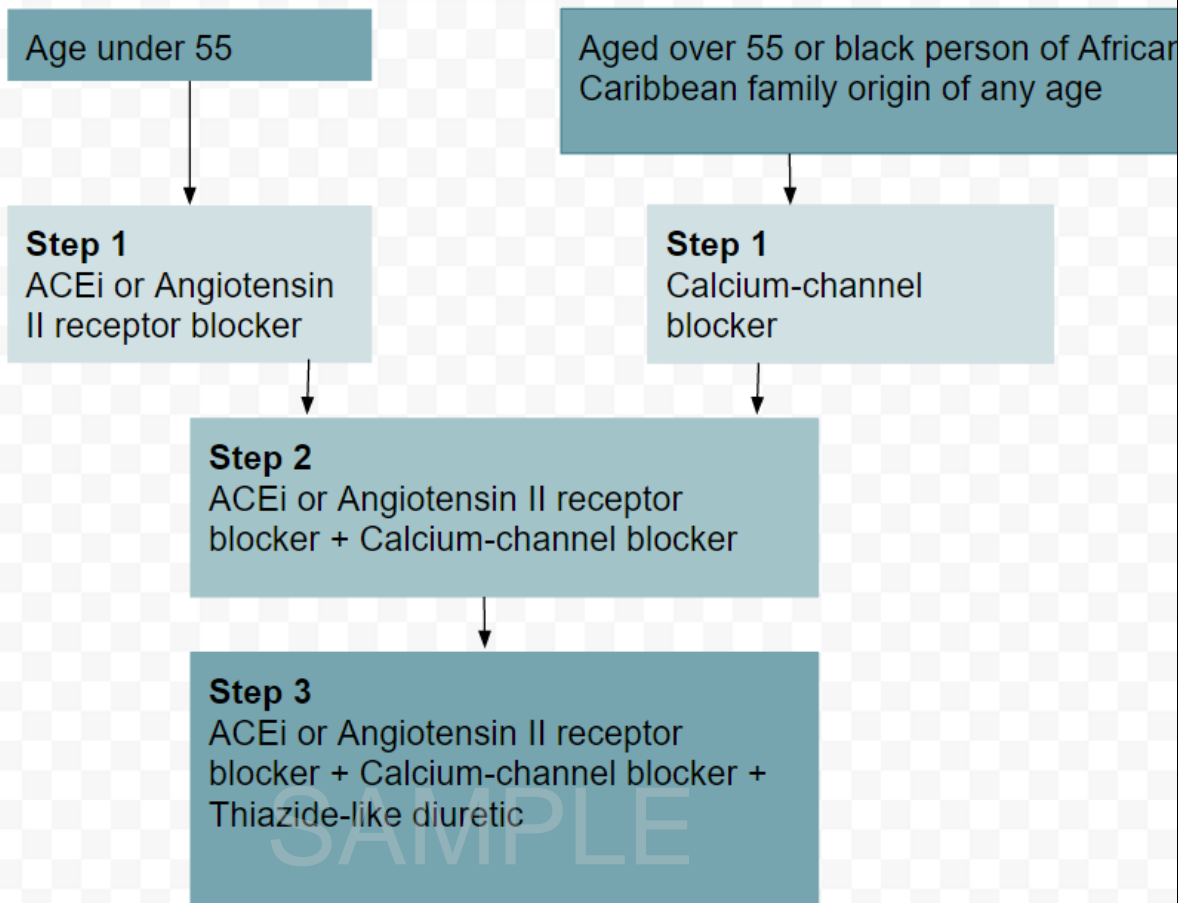
You should be able to recognise that the patient is currently on Step 1 of the NICE hypertension treatment pathway - Persons aged over 55 OR black person of African or Caribbean family origin of any age with hypertension, offer antihypertensive treatment with a CCB. If a CCB is not suitable, for example because of oedema or intolerance, or if there is evidence of heart failure or a high risk of heart failure, offer a thiazide-like diuretic.

He should therefore be commenced with Step 2 by adding an ACE inhibitor or an angiotensin-II receptor blocker.

SAMPLE



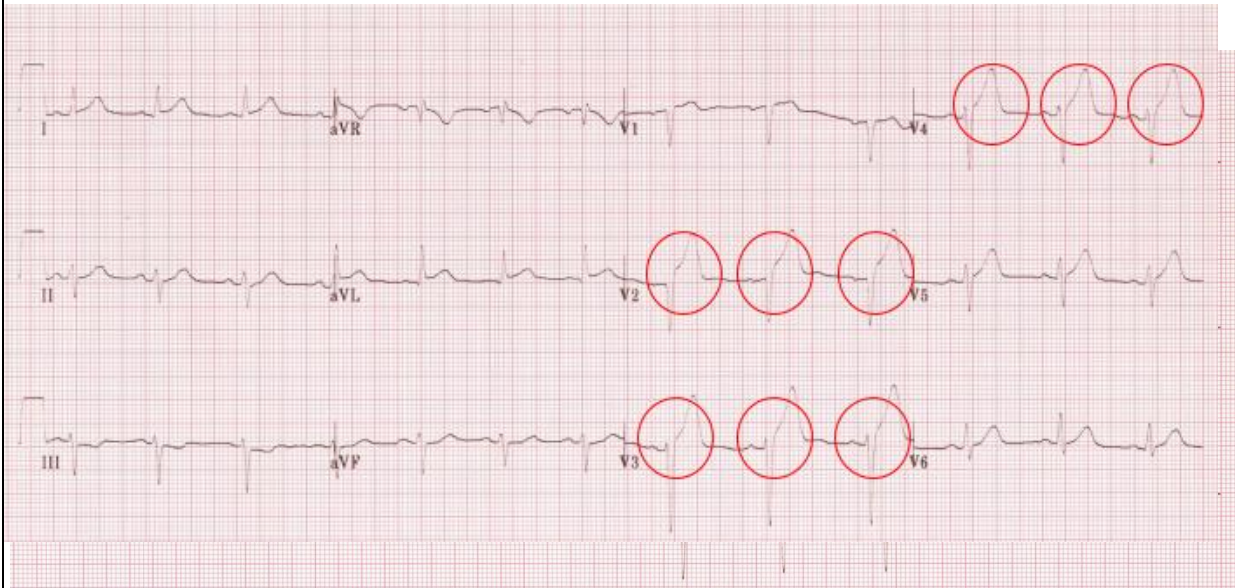
An increase his Indapamide dose is not recommended as doses larger than 2.5mg daily showed no appreciable antihypertensive effect but a diuretic effect may become apparent.





57)

A 56-year-old man presents to the emergency department with chest pain. The following ECG



was taken.

What is the SINGLE most likely diagnosis?

A.

Anteroseptal myocardial infarction

B.

Inferior myocardial infarction

C.

Lateral myocardial infarction

D.

Posterior myocardial infarction

E.

Non-ST-elevation myocardial infarction

We can note that there is ST elevation in lead V2, V3, V4 (circled in red). This ECG shows a classical example of an anterior myocardial infarction.

Those ECG findings are more than enough to answer the questions in the exam and it is highly unlikely that you would need to know more than that.

For those who want to go into more details (probably not needed for the exam), one can notice the following on this ECG:

Q waves are present in the septal leads (V1-2)

Note the subtle ST elevation in I, aVL and V5, with reciprocal ST depression in lead III

There are hyperacute (peaked) T waves in V2, V3 and V4

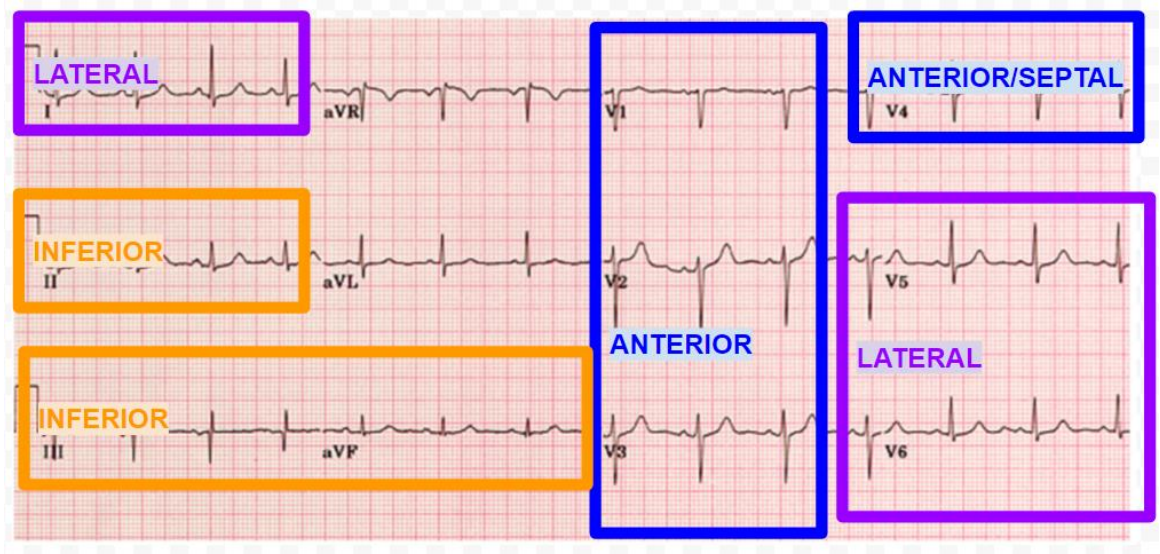
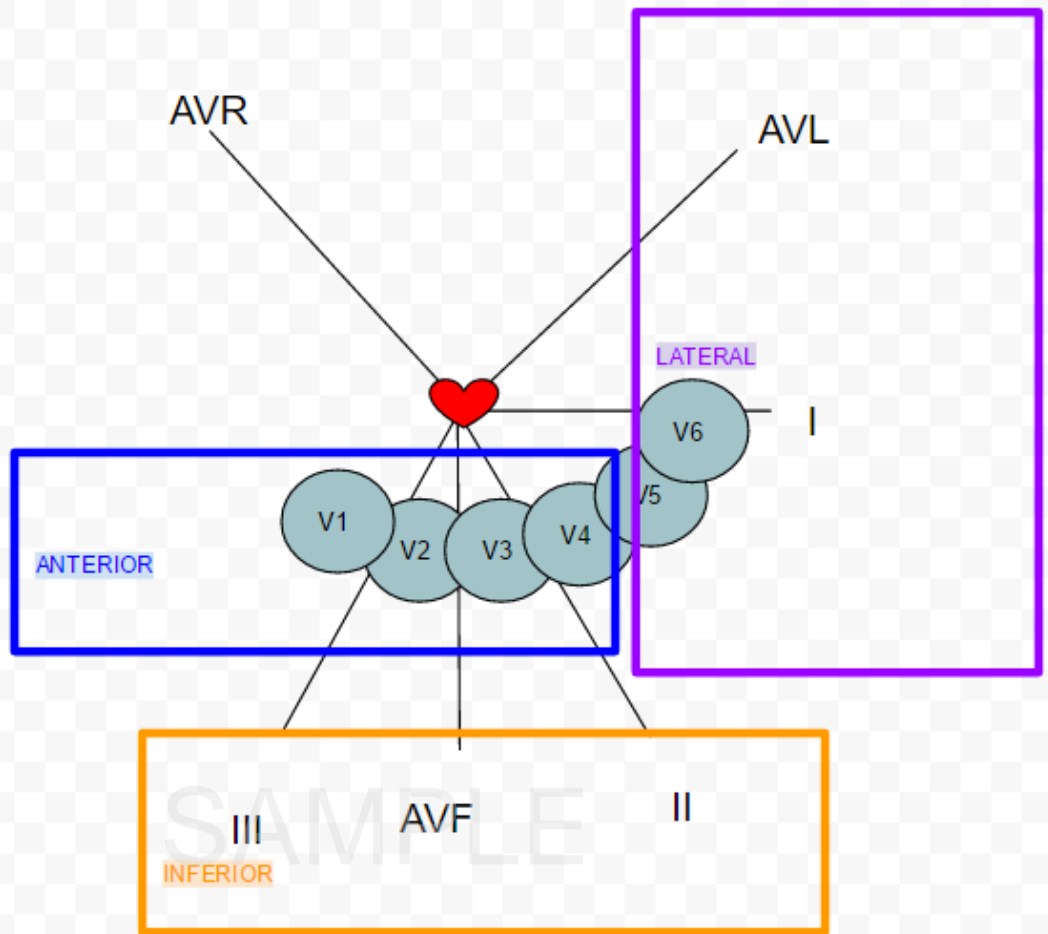
These features indicate an anteroseptal STEMI



ECG changes in myocardial infarction and coronary territories

	Area of infarct	ECG changes	Coronary artery
Most commonly asked	<i>Anteroseptal</i>	<i>V1-V4</i>	<i>Left anterior descending (LAD)</i>
	<i>Inferior</i>	<i>II, III, aVF</i>	<i>Right coronary (RCA)</i>
	<i>Lateral</i>	<i>I, aVL +/- V5-6</i>	<i>Left circumflex</i>
Less commonly asked	<i>Anterolateral</i>	<i>I, aVL, V4-6</i>	<i>Left anterior descending (LAD) or left circumflex</i>
	<i>Posterior</i>	<i>Tall R waves V1-2</i> <i>Also note the reciprocal ST-segment depression in the anterior chest leads</i>	<i>Usually left circumflex, also right coronary</i>

SAMPLE





58) A 45-year-old lady who was previously fit and well is admitted with breathlessness, palpitations and a history of syncope. Her symptoms change with position. On examination, a loud S1 is noted at the apex. What is the SINGLE most likely diagnosis?

- A.
Mitral regurgitation
- B.
Ventricular ectopics
- C.
Pulmonary regurgitation
- D.**
Atrial myxoma
- E.
Complete heart block

Atrial myxomas are benign tumours.

Around three quarters of atrial myxomas occur in the left atria, and tend to grow on the wall (septum).

Sometimes small pieces of the tumor can break off and fall into the bloodstream. If this happens, they can block an artery elsewhere in the body such as the brain, which could cause a stroke, or in the lungs causing a pulmonary embolus.

Around 10% of myxomas seem to be inherited (passed down through families). These are known as familial myxomas.

The symptoms occur due to obstruction of the mitral valve which result in syncope and heart failure.

Features:

- *Symptoms of haemodynamic obstruction, embolisation, or constitutional symptoms such as fever, malaise, tachycardia and tachypnoea*
- *Symptoms and signs of ischaemia or infarction in the peripheries, due to embolisation of adherent thrombus*
- *Atrial fibrillation*
- c *Large myxomas may impair intracardiac blood flow, causing dyspnoea, syncope or symptoms and signs of congestive cardiac failure*
- *Echo: pedunculated heterogeneous mass typically attached to the fossa ovalis region of the interatrial septum*



59)	<p>Which is the SINGLE most likely artery that has artery dominance in 85% of the general population?</p> <p>A. Left anterior descending artery</p> <p>B. Coronary sinus</p> <p>C. Circumflex artery</p> <p>D. Posterior descending artery</p> <p>E. Right coronary artery</p> <p><i>Coronary artery dominance</i></p> <p><i>The artery that supplies the posterior descending artery (PDA) determines the coronary dominance.</i></p> <p><i>If the posterior descending artery is supplied by the right coronary artery (RCA), then the coronary circulation can be classified as "right-dominant".</i></p> <p><i>If the posterior descending artery is supplied by the circumflex artery (CX), a branch of the left artery, then the coronary circulation can be classified as "left-dominant".</i></p> <p><i>If the posterior descending artery is supplied by both the right coronary artery and the circumflex artery, then the coronary circulation can be classified as "co-dominant".</i></p> <p><i>Approximately 85% of the general population are right-dominant</i></p> <p><i>In 85% of patients (Right Dominant), the RCA gives off the posterior descending artery (PDA). In the other 15% of cases (Left Dominant), the PDA is given off by the left circumflex artery. The PDA supplies the inferior wall, ventricular septum, and the posteromedial papillary muscle.</i></p>
60)	<p>A 59 years old man returns for routine follow up 6 weeks following a myocardial infarction. He complains of breathlessness when walking uphill. His ECG shows ST elevation in leads V1, V2, V3, V4 and V5. What is the SINGLE most likely explanation for the abnormal findings?</p> <p>A. Heart block</p> <p>B. Right ventricular strain</p> <p>C. Atrial thrombus</p> <p>D. Left ventricular aneurysm</p> <p>E. Dressler's syndrome</p>



	<p><u>Ventricular aneurysms</u></p> <ul style="list-style-type: none">- Usually complications resulting from a myocardial infarction. When the cardiac muscle partially dies during a myocardial infarction, a layer of muscle may survive, and being severely weakened, start to become an aneurysm. <p>ECG:</p> <ul style="list-style-type: none">- Persistently raised ST segments on ECG and left ventricular failure <p>CXR:</p> <ul style="list-style-type: none">- Cardiomegaly with an abnormal bulge at the left heart border <p>Echo:</p> <ul style="list-style-type: none">- Paradoxical movement of ventricular wall <p>Thrombus may form within the aneurysm increasing the risk of stroke.</p>
61)	<p>A 52-year-old man with history of anterior myocardial infarction 3 weeks ago developed a sudden onset of dyspnoea. He has a blood pressure of 100/60 mmHg, pulse rate of 100 beats/minute, SaO₂ = 88%, and his chest is audible for bilateral crackles. What is the SINGLE best investigation to determine the underlying cause?</p> <p>A. Chest X-ray B. Echocardiogram C. D-dimer D. Ventilation/perfusion scan E. Troponin</p> <p><i>The key word here to look out for is “investigation to determine the underlying cause”. A chest X-ray might show features of pulmonary oedema but will not show the underlying cause. An echocardiogram is more likely to identify the underlying cause whether it be a post myocardial infarction complication such as ventricular aneurysm, infarct expansion, acute mitral regurgitation from papillary muscle rupture or ventricular septal rupture.</i></p>
62)	<p>A 59-year-old man who is on multiple medications for ischaemic heart disease, hypertension and diabetes finds it difficult to mobilize as he feels dizzy when trying to stand up. What is the SINGLE most appropriate investigation for him?</p> <p>A. Blood pressure monitoring B. ECG C. Magnetic resonance imaging D. Chest X-ray E. Computed tomography scan</p>



	<p><u>Postural hypotension (Orthostatic hypotension)</u></p> <p><i>Postural hypotension should always be considered in an elderly patient especially if he is on multiple medications and presents with dizziness. The baroreflex mechanisms which control heart rate and vascular resistance decline with age (particularly in patients with hypertension) who thus display lability in BP. They are particularly prone to postural hypotension and to the effects of drugs.</i></p> <p><i>It may present with dizziness or sudden loss of consciousness after getting up from chair, with recovery within a minute</i></p> <p><i>Diagnosis:</i></p> <ul style="list-style-type: none">- <i>Blood pressure taken when lying down and standing up</i> <p><i>Postural hypotension is defined as a drop-in BP of more than 20 mmHg after 3 minutes of standing.</i></p>
63)	<p>A 57-year-old man presents to A&E with central abdominal and lower back pain associated with feeling faint and sweaty. The pain started very suddenly and it is very severe. His heart rate is 105 bpm and blood pressure is 88/50 mmHg. On physical examination, there is a tender pulsatile abdominal mass and his left femoral pulse is absent. What is the SINGLE most appropriate initial investigation?</p> <p>A. Ultrasound</p> <p>B. Sigmoidoscopy</p> <p>C. Barium enema</p> <p>D. X-ray of the abdomen</p> <p>E. Magnetic resonance imaging of the abdomen</p> <p><i>This is a classic picture of a ruptured abdominal aneurysm.</i></p> <p><i>An ultrasound scan is the only appropriate investigation given the options.</i></p> <p><i>Questions would usually have either an ultrasound or CT abdomen as one of the choices for a ruptured aortic aneurysm. Both choices are correct. It is important to note that both USS or CT scan can be performed. Although, it may be safer and quicker to perform USS in the ED, rather than transfer the patient for CT scan.</i></p>



64) A 62-year-old woman with longstanding anxiety is seen in the outpatient department. She complains of her heart skipping a beat quite often. This particularly occurs when she is trying to get to sleep. The palpitations are never sustained. What is the SINGLE most likely rhythm disturbance?

- A.
Supraventricular tachycardia
- B.
Ventricular fibrillation
- C.
Ventricular tachycardia
- D.
Atrial fibrillation
- E.
Ventricular ectopic

From the given options, the most likely answer is ventricular ectopics. This is a classic scenario where the patient would complain of having "missed beats". They are usually otherwise asymptomatic. If ventricular ectopics occurs in a normal heart (i.e. no cardiomyopathy or ischaemic heart disease) though symptomatic, it is benign and are of no clinical significance.

Ventricular ectopics:

- *Caused by the premature discharge of a ventricular ectopic focus which produces an early and broad QRS complex*

Aetiology:

- *Ischaemic heart disease*
- *Cardiomyopathy*
- *Stress, alcohol, caffeine, medication, cocaine, or amphetamines*
- *Occurs naturally*

Patients may be symptomatic with palpitations often described as "skipped or missed beats" but they may also have symptoms of dyspnoea or dizziness. Over half the population have silent, or asymptomatic, ventricular ectopics which are discovered incidentally on a routine ECG.

In clinical practice, it is important to identify the presence of an underlying cardiomyopathy or ischaemic heart disease. If neither of these are present then it is likely that these ventricular ectopics are benign. Patients with no ischaemic heart disease or cardiomyopathy have an excellent prognosis however, if ventricular ectopics are secondary to heart disease like myocardial infarction, it may precipitate to more life-threatening arrhythmias like ventricular fibrillation.



65)	<p>A 65-year-old man presents with fatigue and dyspnoea 3 days after having a myocardial infarction. On auscultation, he has a pansystolic murmur at the apex radiating to the axilla. What is the SINGLE most likely diagnosis?</p> <p>A. Papillary muscle rupture</p> <p>B. Ventricular aneurysm</p> <p>C. Pericarditis</p> <p>D. Pericardial effusion</p> <p>E. Ventricular septal defect</p> <p><i>Rupture of a papillary muscle is a rare but well known complication of myocardial infarction. Papillary muscle rupture may lead to worsening of mitral regurgitation of which features include having a pansystolic apical murmur radiating to the axilla which is seen in this stem.</i></p>
66)	<p>A 60-year-old man with a history of ischaemic heart disease starts having chest pain. He has a heart rate of 170 beats/minute and a blood pressure of 70/45 mmHg. An ECG reveals a broad complex tachycardia with absence of atrial activity. He feels unwell and is now semi-conscious. What is the SINGLE most likely diagnosis?</p> <p>A. Stokes-Adams syndrome</p> <p>B. Ventricular fibrillation</p> <p>C. Ventricular tachycardia</p> <p>D. Complete heart block</p> <p>E. Atrial fibrillation</p> <p><i>The ECG revealing a broad complex tachycardia with absence of atrial activity in a conscious person can only be ventricular tachycardia. The hypotension seen here supports this. Cardiac arrhythmias are more common in patients with Ischaemic heart disease hence the given history.</i></p> <p><i>Occasionally, in the exam, they may include a picture of an ECG showing a broad complex tachycardia. Again, pick ventricular tachycardia if the patient is still a wake as it is impossible to see a ventricular fibrillation in an awake patient.</i></p>

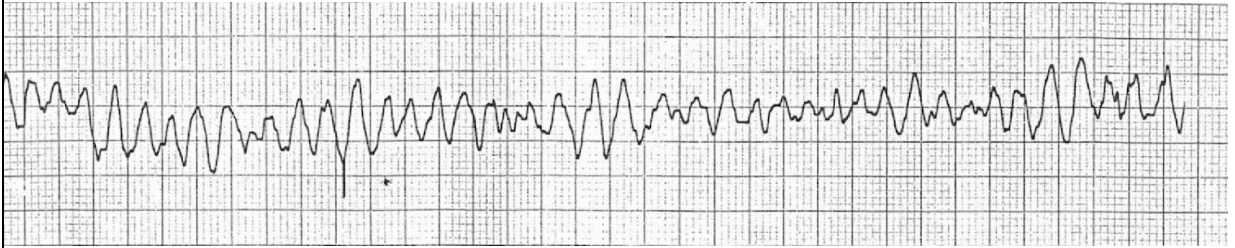


	<p><u>Ventricular tachycardia</u></p> <p><i>Ventricular tachycardia may impair cardiac output with consequent hypotension, collapse, and acute cardiac failure. This is due to extreme heart rates and lack of coordinated atrial contraction (loss of “atrial kick”).</i></p> <p><i>The rate of V. Tach is from about 100-250 bpm. P Waves may be present or absent. P waves are usually not seen if the rate is increased. If present, the P Waves have no relation to the QRS complexes of the V. Tach.</i></p> <p><i>V. tach can present in two ways.</i></p> <ol style="list-style-type: none"><i>1. With Pulse</i><ol style="list-style-type: none"><i>a) Haemodynamically stable or</i><i>b) Haemodynamically unstable — e.g hypotension, chest pain, cardiac failure, decreased conscious level.</i><i>2. Without Pulse</i> <p><i>Management depends on how the patient presents:</i></p> <ol style="list-style-type: none"><i>1. With Pulse</i><ol style="list-style-type: none"><i>a) Haemodynamically stable → antiarrhythmics e.g. amiodarone, lidocaine, procainamide</i><i>b) Haemodynamically unstable — e.g hypotension, chest pain, cardiac failure, decreased conscious level. → immediate electrical cardioversion is indicated</i><i>2. Without Pulse → immediate electrical cardioversion is indicated</i>
67)	<p>A 28-year-old man presents with a 2 hours' history of rapid palpitations. He feels light headed but is otherwise well. On examination, he has a pulse of 170 beats/minute, regular. His blood pressure is 100/68 mmHg. He had 2 similar episodes of feeling palpitations in the past 3 months. What is the SINGLE most likely rhythm disturbance?</p> <p>A. Supraventricular tachycardia B. Ventricular fibrillation C. Ventricular tachycardia D. Ectopic beats E. Atrial fibrillation</p> <p><i>The given history of palpitation, light-headedness with tachycardia plus a history that this has occurred before, gives the likely diagnosis of supraventricular tachycardia</i></p> <p><i>Supraventricular tachycardia</i> <i>Paroxysmal supraventricular tachycardia is manifested as an absolutely regular rhythm at a rate between 130 and 220 beats/min.</i></p>



68)

A 72-year-old man is found not breathing in the CCU with the following rhythm. His pulse can not be felt. What is the SINGLE most likely diagnosis?



- A. Supraventricular tachycardia
- B. Ventricular tachycardia
- C. Ventricular fibrillation**
- D. Atrial fibrillation
- E. Atrial flutter

Ventricular fibrillation (VF)

Ventricular Fibrillation means “sudden death”. The blood pressure drops immediately to zero and so does the cardiac output. Ventricular fibrillation (VF) is the most important shockable cardiac arrest rhythm. The ventricles suddenly attempt to contract at rates of up to 500 bpm. This rapid and irregular electrical activity renders the ventricles unable to contract in a synchronised manner, resulting in immediate loss of cardiac output. Unless advanced life support is rapidly instituted, this rhythm is invariably fatal. Prolonged ventricular fibrillation results in decreasing waveform amplitude, from initial coarse VF to fine VF and ultimately moving on to asystole due to progressive depletion of myocardial energy stores.

ECG Findings for V. Fib:

- Chaotic irregular deflections of varying amplitude
- No identifiable P waves, QRS complexes, or T waves
- Rate 150 to 500 per minute
- There is no specific pattern to the discharge. There are different types of wavering baseline patterns

69)

52-year-old man presents with increased breathlessness at rest. He is currently taking furosemide which he finds gives him some relief. His medical history is significant for diabetes mellitus. On examination, bilateral pedal oedema and bibasal crepitation's are noted. What is the SINGLE most appropriate next step in management?

- A. Ramipril**
- B. Bendroflumethiazide
- C. Atenolol
- D. Amlodipine
- E. Carvedilol



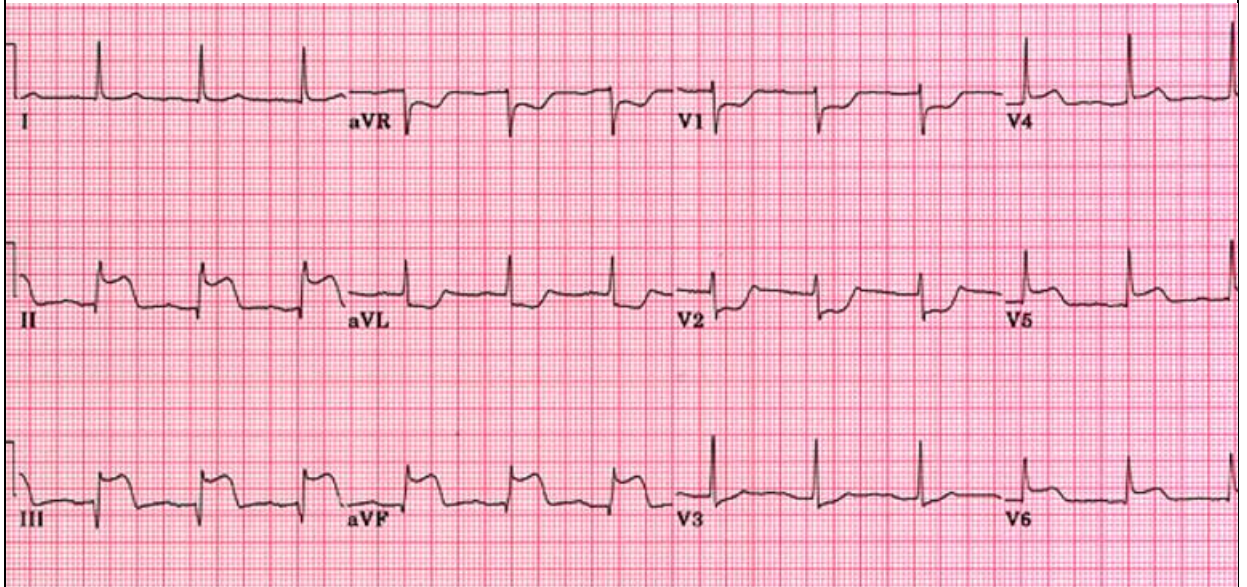
	<p><i>This patient is suffering from chronic heart failure. Given that this patient has diabetes mellitus, an ACE-inhibitor like Ramipril would be more appropriate when compared to a beta blocker.</i></p> <p><i>Management of chronic heart failure</i></p> <p><i>The general management of chronic heart failure can be summarized below:</i></p> <ul style="list-style-type: none">- ACE-inhibitor and a beta-blocker (e.g. Carvedilol) → 1st line- Spironolactone → 2nd line- Digoxin → Only if heart failure is in combination with atrial fibrillation <p><i>Both an angiotensin-converting enzyme (ACE) inhibitor and a beta-blocker licensed to treat heart failure but it is good practice to only start one drug at a time.</i></p> <p><i>Clinical judgement is used when deciding which drug to start first. For example, the preferred initial treatment might be:</i></p> <ul style="list-style-type: none">- An ACE-inhibitor if the person has diabetes mellitus or has signs of fluid overload- A beta-blocker, if the person has angina
70)	<p>A 79-year-old man with a past history of ischemic heart disease presents with yellow haloes, nausea and vomiting. His ECG reveals an arrhythmia. Which of the following medication is most likely responsible for his symptoms?</p> <p>A. Digoxin</p> <p>B. Amlodipine</p> <p>C. Aminophylline</p> <p>D. Propranolol</p> <p>E. Diltiazem</p> <p><i>The words “yellow haloes” are a clincher for digoxin toxicity.</i></p> <p><i>For PLAB, if you see any question with yellow-green colour vision with arrhythmia, it is most likely digoxin toxicity.</i></p> <p><i>Digoxin is now mainly used for rate control in the management of atrial fibrillation. As it has positive inotropic properties it is sometimes used for improving symptoms (but not mortality) in patients with heart failure.</i></p> <p><i>Also remember, hypokalaemia predisposes to toxicity because potassium and digoxin bind to the same site on the sodium-potassium ATPase pump, leading to increased intracellular calcium leading to increased cardiac contractility.</i></p>



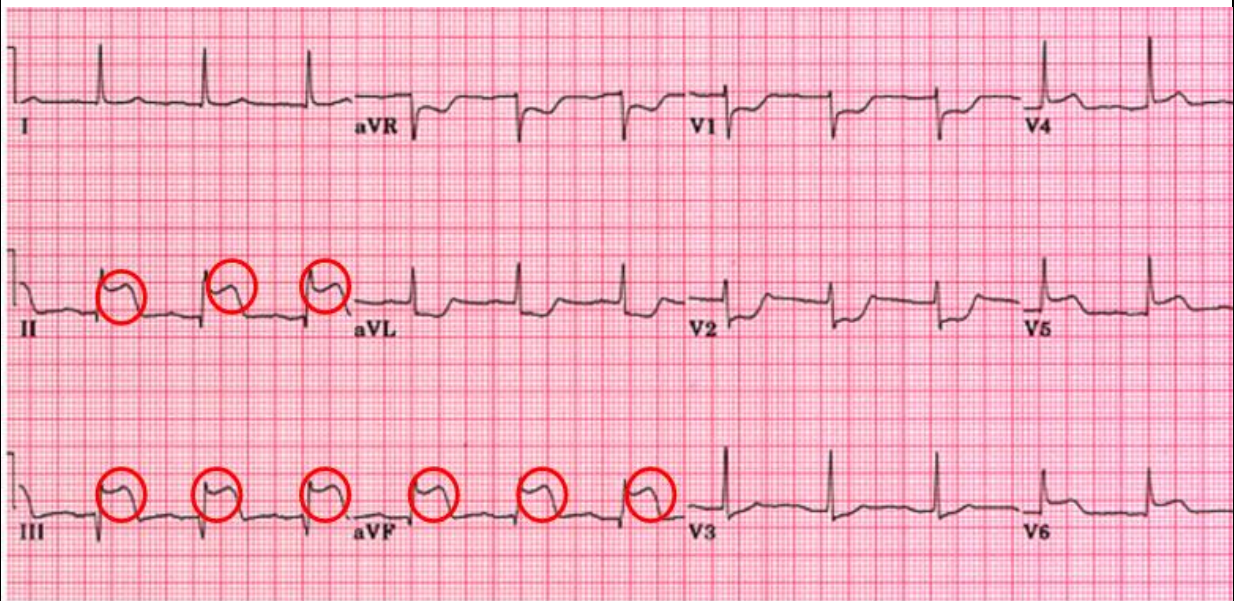
	<p><i>Features of digoxin toxicity</i></p> <ul style="list-style-type: none">- <i>Gastrointestinal symptoms are most common. These are nausea, vomiting, diarrhoea, and anorexia</i>- <i>Neurologic and visual symptoms include blurred vision, yellow-green vision, hallucinations, and confusion.</i>- <i>Arrhythmias - Bradycardia, premature contractions, ventricular tachycardia, and any other type of arrhythmias may be seen.</i> <p><i>A serum digoxin level should be ordered in patients you suspect of being toxic (history, etc.).</i></p> <p><i>Management of digoxin toxicity</i></p> <ul style="list-style-type: none">- <i>Digibind</i>- <i>Correct arrhythmias</i>- <i>Monitor potassium</i>
71)	<p>A 50-year-old man presents with a stab wound to his left anterior chest at the level of the 4th intercostal space. On physical examination, his neck veins are dilated, heart sounds are faint and trachea is central. He has a systolic blood pressure of 80 mmHg and a pulse rate of 130 bpm. What is the SINGLE most likely diagnosis?</p> <p>A. Cardiac tamponade</p> <p>B. Diaphragmatic rupture</p> <p>C. Fractured ribs</p> <p>D. Tension pneumothorax</p> <p>E. Traumatic rupture of aorta</p>
72)	<p>A 40-year-old man was brought into the A&E after being hit by a vehicle. He sustained trauma to the chest. His neck veins look distended and his heart sounds are faint. He has a blood pressure of 80/45 mmHg and pulse is 120 bpm. His trachea is central. What is the SINGLE most appropriate management?</p> <p>A. Chest drain</p> <p>B. IV fluids</p> <p>C. Pericardiocentesis</p> <p>D. Large-bore cannula into second intercostal space in midclavicular line</p> <p>E. Blood transfusion</p>



73)	<p>A 55-year-old man has central chest pain that radiates to his shoulders and arm. It is relieved by sitting up and leaning forward. Pericardial friction rub is heard. A widespread 'saddle-shaped' ST elevation is seen on an ECG. The cardiac shadow is not enlarged on a chest X-ray. What is the SINGLE most likely diagnosis?</p> <p>A. Acute pericarditis</p> <p>B. Cardiac tamponade</p> <p>C. Pericardial Effusion</p> <p>D. Myocardial infarction</p> <p>E. Pleural effusion</p>
74)	<p>A 45-year-old carpenter presents with a 2-hour history of chest pain radiating to his left arm. His ECG is normal. What is the SINGLE most appropriate investigation?</p> <p>A. Cardiac enzymes</p> <p>B. Chest X-ray</p> <p>C. Chest CT</p> <p>D. Holter ECG</p> <p>E. V/Q scan</p>
75)	<p>A 72-year-old woman presents to the emergency department with chest pain. The following ECG was taken. What is the SINGLE most likely diagnosis?</p>



- A.
Anteroseptal myocardial infarction
- B.
Inferior myocardial infarction**
- C.
Lateral myocardial infarction
- D.
Posterior myocardial infarction
- E.
Non-ST-elevation myocardial infarction



There is obvious ST elevation in leads II, III and aVF.

ECG changes in myocardial infarction and coronary territories

	Area of infarct	ECG changes	Coronary artery
Most commonly asked	Anteroseptal	V1-V4	Left anterior descending (LAD)
	Inferior	II, III, aVF	Right coronary (RCA)
	Lateral	I, aVL +/- V5-6	Left circumflex
Less commonly asked	Anterolateral	I, aVL, V4-6	Left anterior descending (LAD) or left circumflex
	Posterior	Tall R waves V1-2 Also note the reciprocal ST-segment depression in the anterior chest leads	Usually left circumflex, also right coronary



76)	<p>A 38-year-old man presents to the emergency department feeling unwell and dizzy. He has a heart rate of around 35 beats/minute. What is the SINGLE most appropriate first line treatment?</p> <p>A. Atropine</p> <p>B. Adenosine</p> <p>C. Dopamine</p> <p>D. Epinephrine</p> <p>E. Supplemental oxygen</p> <p><i>Atropine is the first drug of choice for symptomatic bradycardia.</i></p> <p><i>The dose in the bradycardia ACLS algorithm is 0.5mg intravenous push and may repeat up to a total dose of 3mg.</i></p>
77)	<p>A 63-year-old man presents with sudden severe chest pain that radiates through to his back. He is sweaty and nauseated. On examination, his BP is 176/96 in his right arm and 143/78 in his left arm. On auscultation, you can hear an early diastolic murmur.</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Aortic valve perforation</p> <p>B. Thoracic outlet syndrome</p> <p>C. Aortic aneurysm</p> <p>D. Myocardial infarction</p> <p>E. Aortic dissection</p> <p>Acute aortic dissection is defined as the rapid development of a false, blood-filled channel within the tunica media of the aorta. It has an estimated incidence of 3 per 100,000 persons per year</p> <p>Patients with aortic dissection typically present with severe central chest pain that radiates through to the interscapular area. The pain is often described as being tearing or ripping in nature and may also radiate onto the neck. Sweating, pallor and tachycardia are all also commonly seen at presentation. Other features that may be present include focal neurological deficits, pulse deficits, syncope and end organ ischaemia.</p>



An inter-arm blood pressure differential of greater than 20 mmHg is a highly sensitive predictor. Retrograde extension can involve the aortic valve resulting in the appearance of the early diastolic murmur of aortic regurgitation.

Risk factors include:

- Hypertension
- Atherosclerosis
- Aortic coarctation
- Sympathomimetic drug use e.g. cocaine
- Marfan syndrome
- Ehlers-Danlos syndrome
- Turner's syndrome
- Tertiary syphilis
- Pre-existing aortic aneurysm

Aortic dissection can be classified using the Stanford classification:

- Type A – affects the ascending aorta and the arch and accounts for 60% of dissections. These are generally managed surgically and may result in coronary artery occlusion and aortic regurgitation.
- Type B – dissection commences distal to the left subclavian artery and accounts for approximately 40% of dissections. These are generally managed medically with blood pressure control.

SAMPLE



DERMATOLOGY

SAMPLE



1. A 35 year old woman has a butterfly rash on her face and suffers from symmetrical joint pains in the knee and elbow, Recent laboratory results show an elevated ESR and normal CRP. What is the SINGLE most discriminative investigations?

A. Anti-dsDNA

B. Anti-histone

C. Antinuclear antibodies

D. Anti-Jo-1

E. Anti-Scl-70

The signs and symptoms here point towards systemic lupus erythematosus (SLE). The 3 best initial test to order are anti-dsDNA titre, complement (C3 and C4) and ESR.

ESR may be raised but CRP may be normal unless there is intercurrent infection or serositis.

Systemic lupus erythematosus (SLE)

Important must know features for the PLAB exam

- Remitting and relapsing illness
- Mouth ulcers → large, multiple and painful
- Lymphadenopathy
- Malar (butterfly) rash: spares nasolabial folds
- Discoid rash: scaly, erythematous, well demarcated rash in sun-exposed areas
- Photosensitivity
- Arthralgia
- Raynaud's phenomenon occurs in about one fifth of patients but is often mild
- Cardiovascular: pericarditis
- Respiratory: pleurisy, fibrosing alveolitis
- Renal: Glomerulonephritis (nephritis is often asymptomatic and is detected by proteinuria, haematuria, hypertension or a raised serum urea or creatinine)
- Neuropsychiatric: anxiety and depression are common

Investigation

FBC and ESR:

- Mild normochromic normocytic anaemia is common
- ESR is raised

Autoantibodies:

- Antinuclear antibody (ANA)
 - Screening test with a sensitivity of 95% but not diagnostic in the absence of clinical features. It is a nonspecific antibody that is also present in many patients with systemic autoimmune conditions
- Anti-dsDNA
 - Highly specific (> 99%), but less sensitive (70%)
- Anti-Smith
 - Most specific (> 99%), but even less sensitive (30%-40%)



	<ul style="list-style-type: none">- Anti-histone: drug-induced lupus ANA antibodies are often this type- 20% are rheumatoid factor positive <p>Complement levels (C3, C4) are low during active disease (formation of complexes leads to consumption of complement)</p>
2.	<p>A 19 year old girl has developed an itchy well-demarcated bright red elevated lesions over the extensor surface of her body. She also complains of a dry itchy scalp. Her mother suffers from a similar rash that often comes and goes. What is the SINGLE most likely diagnosis?</p> <p>A. Eczema B. Seborrheic dermatitis C. Impetigo D. Lichen planus E. Psoriasis</p> <p><u>Psoriasis</u></p> <p><i>The level of PLAB is rather superficial and it would be unlikely that they would ask you about types of psoriasis. However, you do need to know how it presents.</i></p> <p><u>Presentation:</u></p> <ul style="list-style-type: none">- Itchy, well-demarcated circular-to-oval bright red/pink elevated lesions (plaques) with overlying white or silvery scale, distributed symmetrically over extensor body surfaces and the scalp- Nail changes: pitting, onycholysis- Relapses- May have a family history
3.	<p>A 29 year old man has developed a red, raised rash on his trunk after playing football. The rash is becoming increasingly itchy over the past few hours and has now spread to his arms. His past medical history includes asthma which was diagnosed when he was 7 years old. What is the SINGLE most appropriate management?</p> <p>A. Oral chlorpheniramine B. Oral amoxicillin C. IM adrenaline D. Nebulized salbutamol E. No treatment necessary</p> <p><i>This man is suffering from urticaria. Oral antihistamines would be indicated.</i></p> <p><i>Since this is an allergic reaction, the only two reasonable options are A and C in this question. However, in the context of allergic reactions, IM adrenaline should only be used in anaphylactic shock whereby the patient would have breathing difficulties.</i></p>



	<p><i>The followings are the indications of adrenaline in anaphylaxis:</i></p> <ol style="list-style-type: none">1. <i>Hoarseness of voice</i>2. <i>Wheeze</i>3. <i>Shortness of breath</i>4. <i>Shock</i>5. <i>Stridor</i>6. <i>Swelling of the tongue and cheek</i>7. <i>Facial swelling</i> <p><i>If you see an urticaria like allergic reaction, with none of the following indications stated above for adrenaline, then pick the oral antihistamine as the answer.</i></p>
4.	<p>A 19 year old boy complains of severe itching at the site of an insect bite which he noticed earlier today while camping. What is the SINGLE most appropriate management?</p> <p>A. Oral antihistamine</p> <p>B. Doxycycline</p> <p>C. IM adrenaline</p> <p>D. Oral ciprofloxacin</p> <p>E. Reassurance</p> <p><i>The question here is quite straightforward. Itching without signs or symptoms of anaphylaxis. Manage with oral antihistamines.</i></p>
5.	<p>A 34 year old woman has fatigue, oral ulcers and a facial rash that is worse in the summer. She complains of having joint pains and stiffness especially in the morning. Urea and creatinine are slightly elevated with urinalysis demonstrating red cell casts. What is the SINGLE most appropriate investigations?</p> <p>A. Ultrasound of the Kidneys, Ureters & Bladder</p> <p>B. Joint aspiration</p> <p>C. Autoantibodies</p> <p>D. Intravenous urogram</p> <p>E. Schirmer test</p> <p>The signs and symptoms here point towards systemic lupus erythematosus (SLE). The 3 best initial test to order are anti-dsDNA titre, complement (C3 and C4) and ESR. Given in the options are autoantibodies which include anti-dsDNA titres.</p>



6.

A 33 year old woman who recently came from India has a nodular patch on both her shins which is reddish brown. The nodules are slightly raised above the surrounding skin. She also has a fever and feels unwell. What is the SINGLE most probable diagnosis?

- A. Lupus vulgaris
- B. Erythema nodosum**
- C. Pyoderma gangrenosum
- D. Erythema marginatum
- E. Solar keratosis

Erythema nodosum is the most likely diagnosis here. The reason they give a history of coming from India with fever and feeling of being unwell is to point you towards the direction of tuberculosis. Erythema nodosum can occur with the primary infection of TB.

Erythema Multiforme

- Target lesions
- If symptoms are severe and involve blistering → Think Steven Johnson Syndrome
- Causes:
 - Mycoplasma
 - Penicillin

Erythema Nodosum

- Tender, erythematous, nodular lesions
- Usually over shins
- May also occur elsewhere e.g. forearms, thighs
- Causes:
 - IBD
 - Sarcoidosis
 - Drugs e.g. Penicillins

Erythema Marginatum

- Pink rings on torso or inner surface of limbs
- Barely raised and are non-itchy
- Causes:
 - Rheumatic fever (considered in major Jone's criteria)

Erythema Chronicum Migrans

- Target lesions
- Causes:
 - Only Lyme disease

Erythema Infectiosum (fifth disease)

- Caused by parvovirus B19
- Childhood infection causing a slapped cheek appearance and a rash
- Appears a few days later with firm red cheeks
- Lasts 2 to 4 days, and is followed by a pink rash on the limbs and occasionally the trunk

Erythema Ab Igne

- Reaction caused by chronic exposure to infrared radiation in the form of heat
- Usually an elderly who sits too close to an open fire or electric space heater



7.	<p>An 8 year old child presented to her GP with eczema. She was given emollient and topical steroids by the GP. What SINGLE most appropriate advice should be given to her regarding application of the ointments and cream?</p> <p>A. Use steroids only when itchy B. Apply emollient first, then steroids 30 minutes later C. Apply steroids first, then emollient 30 minutes late D. Mix emollient & steroid before use E. Apply emollient at night together with steroids</p> <p><i>If a topical steroid is also being used with an emollient, the emollient should be applied first followed by waiting at least 30 minutes before applying the topical steroid. Creams soak into the skin faster than ointments.</i></p>
8.	<p>A 22 year old woman complains of recent onset of severe itching and weals which followed a viral infection. On inspection, numerous weals of all sizes are noticed on his skin. The weals tend to come and go within hours. What is the SINGLE most likely diagnosis?</p> <p>A. Primary sclerosing cholangitis B. Urticaria C. Psychogenic itching D. Atopic eczema E. Primary biliary cirrhosis</p> <p><u>Urticaria</u></p> <p><i>The typical lesion is a central itchy white papule or plaque due to swelling of the surface of the skin (weals). This is surrounded by an erythematous flare. The lesions are variable in size and shape and may be associated with swelling of the soft tissues of the eyelids, lips and tongue</i></p> <p><i>Individual lesions are typically transient. They come and go within a few minutes to hours.</i></p> <p><u>Management</u></p> <ul style="list-style-type: none">- Where possible, identify and treat the cause. Nonspecific aggravating factors should be minimised, such as overheating, stress, alcohol, and caffeine- Antihistamines: Non-sedating H1 antihistamines are the mainstay of treatment. In pregnancy chlorphenamine is often the first choice of antihistamine



9.	<p>A 24 year old woman complains of recent onset of severe itching and weals which followed a viral infection. She is unable to sleep at night due to the itch. On inspection, numerous weals of all sizes are noticed on his skin. The weals tend to come and go within hours. Eyelids, lips and tongue appear normal with no swelling. What is the SINGLE most appropriate management?</p> <p>A. Antihistamines B. Adrenaline C. Ursodeoxycholic acid D. Ganciclovir E. Benzodiazepine</p>
10.	<p>A 29 year old woman has developed an itchy scaly rash particularly over her wrist with fine white streaks overlying the lesion. Her nails have ridges and her buccal mucosa is lined with a lacy white pattern. What is the SINGLE most likely diagnosis?</p> <p>A. Psoriasis B. Scabies C. Lichen planus D. Dermatitis herpetiformis E. Candida infection</p> <p>Lichen planus <i>Lichen planus is a skin disorder of unknown aetiology, most probably being immune mediated.</i></p> <p>Features</p> <ul style="list-style-type: none">- Purple, pruritic, papular, polygonal rash on flexor surfaces- Lacy white pattern on buccal mucosa <p>Mnemonic: 4P <i>Purple</i> <i>Pruritic</i> <i>Papular</i> <i>Polygonal rash</i></p>
11.	<p>A 44 year old man complains of a solitary, shiny, red nodule which has been growing on his nose for several months. It is firm with a central depression. It is 0.6 cm in size. What is the SINGLE most likely diagnosis?</p> <p>A. Basal cell carcinoma B. Squamous cell carcinoma C. Molluscum contagiosum D. Keratoacanthoma E. Kaposi's sarcoma</p>



	<p><i>The clues for basal cell carcinoma in the exam are descriptions of a pearly white umbilicated ulcer with central depression anywhere in the face with rolled edges or inverted edge. These are hints pointing towards the diagnosis of basal cell carcinoma. Ulcers presenting above the neck in the PLAB exam are almost inevitably basal cell carcinoma.</i></p> <p><u>Basal cell carcinoma</u></p> <p><i>Basal cell carcinomas (BCCs) are slow-growing, locally invasive malignant epidermal skin tumours</i></p> <p><i>Risk factors:</i></p> <ul style="list-style-type: none">- Genetic predisposition- Exposure to ultraviolet (UV) radiation <p><i>Presentation:</i></p> <ul style="list-style-type: none">- The sun-exposed areas of the head and neck are the most commonly involved sites- Early lesions are often small, translucent or pearly and have raised areas with telangiectasia- Indurated edge and ulcerated centre
12.	<p>A 7 year old girl has been treated with penicillin for a sore throat, fever and cough. A few hours later she develops a skin rash and complains of pruritus. What is the SINGLE most probable diagnosis?</p> <p>A. Erythema nodosum B. Erythema multiforme C. Steven Johnson Syndrome D. Erythema marginatum E. Erythema gangrenosum</p>
13.	<p>A 55 year old woman has fatigue and arthralgia. She has been feeling increasingly tired over the last few months with aches and pains especially in the morning. On examination, a ring-shaped, raised scaly lesions are noticed on sun-exposed areas. Her past medical history includes chronic heart failure which is treated with isosorbide dinitrate and hydralazine. What is the SINGLE most likely positive antibody?</p> <p>A. Anti-dsDNA B. Anti-histone C. Anti-Smith D. Anti-Jo-1 E. Anti-La</p> <p><i>Hydralazine can cause drug-induced lupus in which anti-histone antibodies are found in 95% of cases.</i></p>



	<p>Drug-induced lupus</p> <p><i>In drug-induced lupus not all the typical features of systemic lupus erythematosus are seen, with renal and nervous system involvement being unusual. It usually resolves on stopping the drug.</i></p> <p>Features</p> <ul style="list-style-type: none">- Arthralgia- Myalgia, fatigue- Skin (e.g. malar rash) and pulmonary involvement (e.g. pleurisy) are common- Anti-histone antibodies are found in 95% of cases <p><i>While these symptoms are similar to those of systemic lupus erythematosus, they are generally not as severe unless they are ignored which leads to more harsh symptoms.</i></p> <p><i>Symptoms of drug-induced lupus erythematosus generally disappear days to weeks after medication use is discontinued.</i></p>
14.	<p>A 72 year old woman admitted for community acquired pneumonia was given Amoxicillin. 90 minutes after treatment, she developed a generalised rash with a necrotic base sparing the oral mucosa and genital area. What is the SINGLE most likely diagnosis?</p> <p>A. Erythema multiforme</p> <p>B. Erythema nodosum</p> <p>C. Erythema migrans</p> <p>D. Erythema marginatum</p> <p>E. Urticaria</p>
15.	<p>A 58 year old man complains of nose disfigurement. He has a history of facial erythema particularly of the cheeks and nose. Red papules and pustules have been erupting at intervals over the last 10 years. He notices that his face becomes flushed commonly after consumption of alcohol. On examination, he is noted to have rhinophyma. What is the SINGLE most likely diagnosis?</p> <p>A. Eczema</p> <p>B. Acne rosacea</p> <p>C. Pemphigus vulgaris</p> <p>D. Dermatomyositis</p> <p>E. Tinea versicolor</p> <p><u>Acne rosacea</u></p> <p><i>Rosacea is a common rash, usually occurring on the face, which predominantly affects middle-aged (age range 40 to 60 years old) and fair skinned people.</i></p>



	<p><i>Clinical features:</i></p> <ul style="list-style-type: none">- Red papules and pustules on the nose, forehead, cheeks and chin- Frequent blushing or flushing- Red face due to persistent redness and/or prominent blood vessels - telangiectasia- Aggravation by sun exposure and hot and spicy food- Fibrous thickening causing rhinophyma → Rhinophyma is an enlarged nose associated with rosacea which occurs almost exclusively in men <p><i>For a diagnosis to be confirmed the erythema should have been present for at least three months</i></p> <p><i>Note: Flushing after alcohol or spicy food is a hint usually put in exams</i></p>
16.	<p>A 32 year old woman has malaise, fatigue, weight loss and fever. On examination, a Malar rash with sparing of nasolabial fold can be seen. She also complains of joint stiffness and pain. What is the SINGLE most appropriate investigation?</p> <p>A. Anti-dsDNA B. Anti-histone C. Anti-centromere D. Anti-Jo-1 E. Anti-Scl-70</p> <p><i>The signs and symptoms here point towards systemic lupus erythematosus (SLE). The 3 best initial test to order are anti-dsDNA titre, complement (C3 and C4) and ESR.</i></p>
17.	<p>A 19 year old man complains of shortness of breath, wheeze, and cough. He also has dry scaly skin with rashes that are itchy. His brother suffers from similar symptoms. What is the single SINGLE most likely diagnosis?</p> <p>A. Scabies B. Eczema C. Rheumatism D. Dermatitis E. Psoriasis</p> <p>The shortness of breath, wheeze and cough is probably due to asthma. Eczema fits the symptoms perfectly as atopic eczema has a family history and also is associated with asthma.</p>



18.	<p>A 25 year old woman presents with pruritic purple papules on the flexor surface of her wrist. A white lacy pattern is identified on her buccal mucosa. What is the SINGLE most likely diagnosis?</p> <p>A. Leukoplakia B. Candida infection C. Lichen simplex D. Lichen sclerosus E. Lichen planus</p> <p>Lichen planus Lichen planus is a skin disorder of unknown aetiology, most probably being immune mediated.</p> <p>Features</p> <ul style="list-style-type: none">- Purple, pruritic, papular, polygonal rash on flexor surfaces- Lacy white pattern on buccal mucosa <p><i>Mnemonic: 4P</i> <i>Purple</i> <i>Pruritic</i> <i>Papular</i> <i>Polygonal rash</i></p>
19.	<p>A 14 year old girl has developed an itchy, scaly patch on her scalp. She had a similar patch that cleared spontaneously 2 years ago. Her aunt has a similar undiagnosed rash on the extensor aspects of her elbows and knees. What is the SINGLE most likely diagnosis?</p> <p>A. Eczema B. Fungal infection C. Impetigo D. Lichen planus E. Psoriasis</p> <p>The fact that she has an itchy, scaly patch on scalp are classic presentation of scalp psoriasis. Her aunt's presentations with a similar rash on extensor aspects of her elbow and knees are suggestive of psoriasis.</p>
20.	<p>A 38 year old man presents with an acute infection of the skin on his the leg. A diagnosis of cellulitis has been made. He has no known allergies. What is the SINGLE best choice of antibiotic to be prescribed?</p> <p>A. Flucloxacillin B. Metronidazole C. Vancomycin D. Ceftriaxone E. Clindamycin</p>



	<p><i>Cellulitis is an infection of the dermis and subcutaneous tissue. The most common causative organisms are Streptococcus or Staphylococcus spp. but they can be caused by a wide range of both aerobic and anaerobic bacteria.</i></p> <p><i>Flucloxacillin in adults is usually given as first-line in uncomplicated infection. In sufficient doses, this covers both beta-haemolytic streptococci and penicillinase-resistant staphylococci.</i></p> <p><i>Erythromycin or Clindamycin can be used if the patient is penicillin-allergic.</i></p>
21.	<p>A 35 year old woman has tiredness and joint pain. She has been undergoing treatment for tuberculosis. On examination, erythematous macules and papules are seen on face, upper chest, and arms in photodistribution. What is the SINGLE most likely positive antibody?</p> <p>A. Anti-dsDNA B. Anti-histone C. Anti-Smith D. Anti-Jo-1 E. Anti-La</p> <p><i>Tuberculosis treatments such as isoniazid can cause drug-induced lupus in which anti-histone antibodies are found in 95% of cases.</i></p> <p>Drug-induced lupus <i>In drug-induced lupus not all the typical features of systemic lupus erythematosus are seen, with renal and nervous system involvement being unusual. It usually resolves on stopping the drug.</i></p> <p>Features</p> <ul style="list-style-type: none">- Arthralgia- Myalgia, fatigue- Skin (e.g. malar rash) and pulmonary involvement (e.g. pleurisy) are common- Anti-histone antibodies are found in 95% of cases <p><i>While these symptoms are similar to those of systemic lupus erythematosus, they are generally not as severe unless they are ignored which leads to more harsh symptoms.</i></p> <p><i>Symptoms of drug-induced lupus erythematosus generally disappear days to weeks after medication use is discontinued.</i></p>



22.

A 4 year old child is brought to your GP practice by her mother. She has painful crusted lesions on her face and neck, mostly localized around her mouth. Her face feels hot to the touch. She is otherwise well. What is the SINGLE most likely diagnosis?

- A. Contact dermatitis
- B. Impetigo**
- C. Measles
- D. Chicken pox
- E. Eczema

Contact Dermatitis: usually presents with itching and redness of a single affected area.

Chicken pox: presents with systemic symptoms such as pyrexia, malaise. Vesicles present on the face, neck and trunk

Measles: Hard K sounds → Koplik spots, Cough, Conjunctivitis, Coryza

Impetigo:

Impetigo is a common condition. It most often affects children although it can occur at any age. Risk factors include poor hygiene and skin conditions that lead to a break in the protective layers

Types and presentation:

- Non-bullous impetigo
 - Non-bullous lesions usually start as tiny pustules or vesicles that evolve rapidly into honey-coloured crusted plaques that tend to be under 2 cm in diameter. It is usually on the face (particularly around the mouth and nose)
- Bullous impetigo
 - Bullous lesions have a thin roof and tend to rupture spontaneously. They are usually on the face, trunk, extremities, buttocks, or perineal regions. They are more likely to occur on top of other disease like atopic eczema.
- Ecthyma
 - This begins as a non-bullous impetigo but ulcerates and becomes necrotic. It is deeper and may occur with lymphadenitis.

Treatment:

The National Institute for Health and Care Excellence (NICE) Clinical Knowledge Summary on impetigo advises that fusidic acid is used first-line in localised infections, three times a day for seven days. Mupirocin should be reserved for cases where MRSA is the causative organism, to avoid resistance.

Flucloxacillin is recommended as first-line treatment when oral antibiotics are required. Clarithromycin or erythromycin are recommended as second-line for those who are allergic to penicillin, with clarithromycin being preferred, as side-effects are less common.

Treatment summary:

1. Topical fusidic acid



	<p>2. <i>Topical Mupirocin if MRSA is involved</i></p> <p>3. <i>Systemic antibiotics namely flucloxacillin (or clarithromycin) in resistance to topical treatment.</i></p>
23.	<p>A 22 year old man presents to the Accident and Emergency department with pain on his left leg. On examination, the area is tender, slightly swollen and inflamed. He has a temperature of 38.6°C. His blood results show:</p> <p>Haemoglobin 138 g/L White cell count 23 x 10⁹/L CRP 58</p> <p>The patient has no known allergies and takes no other regular medications. What is the SINGLE most appropriate first line antibiotic to be prescribed?</p> <p>A. Flucloxacillin B. Metronidazole C. Vancomycin D. Gentamicin E. Terbinafine</p> <p><i>Cellulitis is usually caused by gram positive bacteria such as staphylococci or streptococci which are commonly present on the skin. Flucloxacillin is a narrow-spectrum beta lactam antibiotic which covers susceptible Gram positive bacteria and should therefore be given.</i></p>
24.	<p>A 67 year old builder has a persistent nodular lesion on upper part of his right pinna. On examination, there is a central depression and raised areas with telangiectasia around the lesion. It is 0.5 cm in size. What is the SINGLE most likely diagnosis</p> <p>A. Basal cell carcinoma B. Squamous cell carcinoma C. Keratoacanthoma D. Actinic keratosis E. Bowen's disease</p> <p><i>The clues for basal cell carcinoma in the exam are descriptions of a pearly white umbilicated ulcer with central depression anywhere in the face with rolled edges or inverted edge. These are hints pointing towards the diagnosis of basal cell carcinoma. Ulcers presenting above the neck in the PLAB exam are almost inevitably basal cell carcinoma.</i></p> <p>Basal cell carcinoma <i>Basal cell carcinomas (BCCs) are slow-growing, locally invasive malignant epidermal skin tumours</i></p>



	<p>Risk factors:</p> <ul style="list-style-type: none">- Genetic predisposition- Exposure to ultraviolet (UV) radiation <p>Presentation:</p> <ul style="list-style-type: none">- The sun-exposed areas of the head and neck are the most commonly involved sites- Early lesions are often small, translucent or pearly and have raised areas with telangiectasia- Indurated edge and ulcerated centre
25.	<p>A 12 year old boy presents with pruritus especially around the wrists and palms of his hands. On examination, his skin is dry and red. His mother is asthmatic and older brother has hay fever. What is the SINGLE most likely diagnosis?</p> <p>A. Dermatitis herpetiformis B. Scabies C. Eczema D. Hand foot disease E. Systemic lupus erythematosus</p> <p><i>The findings are consistent with eczema. Having atopic disease in a first-degree relative favours the diagnosis of eczema.</i></p>
26.	<p>A 34 year old cab driver presents with an urticarial rash that is very pruritic. Due to his job, he has requested for any medication to help with the itch which will not make him drowsy. What is the SINGLE most appropriate medication to prescribe?</p> <p>A. Oral chlorpheniramine B. Oral prednisolone C. Oral cetirizine D. Emollients E. Hydrocortisone ointment</p> <p><i>Cetirizine is a second generation antihistamine. It's use will help reduce the symptoms of the pruritus. Second generation antihistamines like cetirizine are less able to cross the blood–brain barrier and therefore have diminished effects on the central nervous system and thus less likely to cause drowsiness when compared to first-generation antihistamines like chlorpheniramine.</i></p> <p><i>Corticosteroids have very little use in urticarial rashes. There may be times when steroids are used but it usually involves severe cases and the suspicion of rarer forms of urticaria such as urticarial vasculitis.</i></p>



SAMPLE



EMERGENCY MEDICINE

SAMPLE



1.	<p>A 17-year-old girl has taken an overdose of 30 paracetamol tablets 3 hours ago. She is extremely anxious but otherwise asymptomatic. She has no past medical history. She weighs 50kg. BP 120/70 mmHg, heart rate is 100 bpm, SaO₂ 98% on air. Which is the SINGLE most appropriate next step?</p> <p>A. Activated charcoal</p> <p>B. Gastric lavage</p> <p>C. N-acetylcysteine infusion</p> <p>D. Paracetamol plasma level 4 hours after overdose</p> <p>E. Urgent liver function tests + clotting screen</p> <p><i>Blood taken before 4 hours is unreliable because the drug is still being absorbed and distributed. The N-acetylcysteine infusion does not need to be started unless the time of the overdose is unknown or has been staggered over a few hours. Initial symptoms are often limited to nausea and vomiting.</i></p> <p><i>The other options are incorrect:</i></p> <p><i>Activated charcoal → should be considered if the overdose has been taken within 1 hour</i></p> <p><i>Gastric lavage → Would always be the wrong answer when dealing with paracetamol poisoning. The British Poisons Centres only recommend the use of gastric lavage cases where medications have been ingested that activated charcoal would absorb poorly (eg iron, lithium) and for sustained-release formulations or enteric-coated tablets.</i></p> <p><i>N-acetylcysteine infusion → Should not be started until the blood test has been taken at 4 hours and results are above a single treatment line. Administration of N-acetylcysteine can be rather confusing but it is important to know exactly what criteria is needed to start acetylcysteine especially as PLAB questions often ask this.</i></p> <p><i>Urgent liver function tests + clotting screen → often no change in these values acutely.</i></p> <p><i>Paracetamol (acetaminophen) poisoning:</i></p> <p><i>Initial features → Nausea, vomiting, pallor</i> <i>After 24 hours → Hepatic enzymes rise</i> <i>After 48 hours → Jaundice, an enlarged, tender liver</i></p> <p><i>Hypoglycaemia, hypotension, encephalopathy, coagulopathy, coma may also occur.</i></p> <p><i>When to discharge home?</i></p> <ul style="list-style-type: none">- <i>If ingestion of paracetamol is < 150mg/kg in a child/adult with no hepatic risk factors</i>
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	<p><i>When to admit?</i></p> <ul style="list-style-type: none">- Admit those presenting within 8h of ingesting >150mg/kg (or an unknown amount) <p><i>(For the exam, it can be quite time consuming to multiply 150mg with the weight of the patient. So, we would advise you to use the number 24 as a benchmark whereby if the patient consumes more than 24 tablets (12 g) of paracetamol, then you admit him/her)</i></p> <p><i>When to do a serum paracetamol concentration?</i></p> <ul style="list-style-type: none">- At ≥ 4h post ingestion if consumed >150mg/kg (or an unknown amount) <p><i>When to give activated charcoal?</i></p> <ul style="list-style-type: none">- If presenting < 1h, and >150mg/kg of tablets ingested <p><i>When to give N-acetylcysteine?</i></p> <ul style="list-style-type: none">- If there is a staggered overdose (Note: a staggered overdose is if all the tablets were not taken within 1 hour); or- If there is doubt over the time of paracetamol ingestion, regardless of the plasma paracetamol concentration; or- If plasma paracetamol concentration (taken 4 hours' post ingestion) is above the appropriate line- If patients present late (>8h) and ingested dose is >150mg/kg, (or dose is unknown)
2.	<p>A 24-year-old man presents with acute respiratory distress after being stabbed in the back. The trachea is not deviated, but he has engorged neck veins and no breath sounds on his right chest. He has a blood pressure of 80/50 mmHg, a pulse of 135 beats/minute, and a respiratory rate of 35 breaths/minute. What is the SINGLE most likely diagnosis?</p> <p>A. Tension pneumothorax</p> <p>B. Cardiac tamponade</p> <p>C. Simple pneumothorax</p> <p>D. Haemothorax</p> <p>E. Pleural effusion</p> <p>Haemothorax:</p> <ul style="list-style-type: none">- Blood accumulates in the pleural cavity <p>Clinical features: Similar to that seen in traumatic pneumothorax, except the following:</p> <ul style="list-style-type: none">- Dullness to percussion over the affected lung- Signs and symptoms of hypovolaemia if massive haemothorax



	<p>Investigations:</p> <ul style="list-style-type: none">- Chest X-ray shows an increased shadowing on a supine X-ray, with no visible fluid level <p>Treatment:</p> <ul style="list-style-type: none">- Oxygen- Insert 2 large venous cannula and send blood for cross matching- Evacuation of blood may be necessary to prevent development of empyema; thus, chest tube is needed and is often placed low. Usually the lung will expand and the bleeding will stop after a chest tube is inserted.- Surgery to stop the bleeding is seldom required. The lung is the usual the source of bleeding. Since it is a low-pressure system, the bleeding usually would stop by itself.
3.	<p>A 33-year-old man was admitted to the emergency department after a head injury. On arrival, he has a Glasgow Coma Scale score of 15. A few hours later, his Glasgow Coma Scale score drops to 12. What is the SINGLE most appropriate immediate action?</p> <p>A. Computed tomography head scan</p> <p>B. X-ray skull</p> <p>C. Intravenous mannitol</p> <p>D. Emergency burr hole</p> <p>E. Shift to operating room</p> <p><i>A CT head would be appropriate. The initial GCS of 15 followed by a later GCS 12 are suggestive of intracranial haemorrhage.</i></p> <p><i>Criteria for performing a CT head scan in Adults (NICE guidelines)</i></p> <p><i>For adults who have sustained a head injury and have any of the following risk factors, perform a CT head scan:</i></p> <ul style="list-style-type: none">- GCS less than 13 on initial assessment in the emergency department.- GCS less than 15 at 2 hours after the injury on assessment in the emergency department.- Suspected open or depressed skull fracture.- Any sign of basal skull fracture (haemotympanum, 'panda' eyes, cerebrospinal fluid leakage from the ear or nose, Battle's sign).- Post-traumatic seizure.- Focal neurological deficit.- More than 1 episode of vomiting. <p><i>For adults with any of the following risk factors who have experienced some loss of consciousness or amnesia since the injury, perform a CT head scan within 8 hours of the head injury:</i></p> <ul style="list-style-type: none">- 65 years or older.



	<ul style="list-style-type: none">- Any history of bleeding or clotting disorders.- Dangerous mechanism of injury (a pedestrian or cyclist struck by a motor vehicle, an occupant ejected from a motor vehicle or a fall from a height of greater than 1 metre or 5 stairs).- More than 30 minutes' retrograde amnesia of events immediately before the head injury.
4.	<p>A 32-year-old man presents to the emergency department after a motorcycle crash. The patient has bruises around the left orbital area. GCS is 13. On examination, an alcoholic breath is noticed. Shortly afterwards, his GCS drops to 8. What is the SINGLE most important initial investigation?</p> <p>A. MRI head B. CT head C. Chest X-ray D. CT angio brain E. Head X-ray</p>
5.	<p>A 33-year-old lady who is an opiate drug addict wants to quit her drug abuse problem. She is supported by her friends and family. What is the SINGLE most appropriate treatment to combat withdrawal symptoms?</p> <p>A. Benzodiazepines B. Chlordiazepoxide C. Naloxone D. Methadone E. Disulfiram</p> <p><i>Methadone is used to help combat withdrawal effects for opiate misusers. Methadone is an opioid medication and it reduces withdrawal symptoms in people addicted to heroin. It does not cause the "high" associated with the drug addiction and thus it is especially helpful for opiate addicts to help them quit the drug addiction problem.</i></p>



6.	<p>A 9-year-old child was admitted following a road traffic accident. On admission, his initial GCS was 15. His GCS dropped to 13 during the night. What is the SINGLE most appropriate management?</p> <p>A. Refer to neuro-surgeon</p> <p>B. IV fluids</p> <p>C. Intubation</p> <p>D. CT head</p> <p>E. Skull X-ray</p> <p><i>A CT head scan should be performed if GCS < 15 at 2 hours' post-injury in children</i></p> <p><i>Criteria for performing a CT head scan in Children (NICE guidelines)</i></p> <p><i>For children who have sustained a head injury and have any of the following risk factors, perform a CT head scan:</i></p> <ul style="list-style-type: none">- <i>Post-traumatic seizure but no history of epilepsy.</i>- <i>On initial emergency department assessment, GCS less than 14, or for children under 1 year GCS (paediatric) less than 15.</i>- <i>At 2 hours after the injury, GCS less than 15.</i>- <i>Suspected open or depressed skull fracture or tense fontanelle.</i>- <i>Any sign of basal skull fracture (haemotympanum, 'panda' eyes, cerebrospinal fluid leakage from the ear or nose, Battle's sign).</i>- <i>Focal neurological deficit.</i> <p><i>For children who have sustained a head injury and have more than 1 of the following risk factors (and none of those stated above), perform a CT head scan:</i></p> <ul style="list-style-type: none">- <i>Loss of consciousness lasting more than 5 minutes (witnessed).</i>- <i>Abnormal drowsiness.</i>- <i>Three or more discrete episodes of vomiting.</i>- <i>Dangerous mechanism of injury (high-speed road traffic accident either as pedestrian, cyclist or vehicle occupant, fall from a height of greater than 3 metres, high-speed injury from a projectile or other object).</i>- <i>Amnesia (ante-grade or retrograde) lasting more than 5 minutes</i>
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7.	<p>A 25-year-old man has been stabbed in the right-hand side of his abdomen with a small knife. He presents with severe pain in his right upper quadrant with guarding. IV fluids are being administered. He is very anxious and agitated. His temperature is 36.5°C, heart rate 120 bpm, BP 85/55 mmHg, SaO₂ 97% on 10L oxygen. The A&E doctor thinks his liver might have been damaged in the attack and calls the surgeons to assess him. Which is the SINGLE most appropriate initial management?</p> <p>A. Cross-match for packed red cells B. Fresh frozen plasma C. Liver enzymes D. Immediate laparotomy E. Urgent CT scan of the abdomen</p> <p><i>Cross-match is the most appropriate as he may need a blood transfusion. If IV fluids have not been started and the option for IV fluids is given in this question, then pick IV fluids. This would be the first initial step together with oxygen.</i></p> <p><i>The other options given in this question are less likely:</i></p> <ul style="list-style-type: none">➔ <i>Fresh Frozen plasma → are used in replacement of isolated factor deficiency, reversal of warfarin effect, massive blood transfusion (>1 blood volume within several hours), treatment of thrombotic thrombocytopenic purpura and are not indicated here in this question</i>➔ <i>Liver enzymes → Have no role in the acute management</i>➔ <i>Immediate laparotomy → This may well be the last step after all investigations are carried out.</i>➔ <i>Urgent CT scan of the abdomen → The patient must be resuscitated and stabilized before sending to the CT scanner.</i>
8.	<p>A 6-month-old boy has been brought A&E following an apnoeic episode at home. He is now completely well but his parents are very anxious as they family friend's child died of sudden infant death syndrome at a similar age. The parents would like to know how to perform CPR on a baby of his age. What is the SINGLE most recommended technique for cardiac compressions?</p> <p>A. All fingers of both hands B. All fingers of one hand C. Palm of one hand D. Thumb of one hand E. Index and middle fingertips of one hand</p> <p><i>There are two options here. Either index and middle finger of one hand or grip the chest in both hands in such a way that two thumbs can press on the lower third of the sternum.</i></p> <p><i>Chest compression in infants:</i></p> <ul style="list-style-type: none">- <i>The lone rescuer should compress the sternum with the tips of two fingers.</i>- <i>If there are two or more rescuers, use the encircling technique:</i>



- a. Place both thumbs flat, side-by-side, on the lower half of the sternum (as above), with the tips pointing towards the infant's head.
- b. Spread the rest of both hands, with the fingers together, to encircle the lower part of the infant's rib cage with the tips of the fingers supporting the infant's back.
- c. Press down on the lower sternum with your two thumbs to depress it at least one-third of the depth of the infant's chest, approximately 4 cm.

Chest compression (only to be started after successful lung inflation). Aim for a rate of 100/min

9.

A 33-year-old man is stabbed with a knife in his thigh. He has tried to use a towel to stop the bleeding but has bled so much that the towel is now soaked with blood. His blood pressure is 85/50 mmHg, pulse rate is 132 beats/minute and respiratory rate is 31 breaths/minute. What percentage of circulatory blood did he lose?

- A. <15%
B. 15-30%
C. 30-40%
D. 40-50%
E. >50%

Stages of hypovolaemic shock

For adults, the clinical staging relating to loss of blood volume can be classified as:

	Stage 1	Stage 2	Stage 3	Stage 4	
Blood loss	10-15%	15-30%	30-40%	Over 40%	
Blood pressure	Normal	Postural hypotension	Hypotension	Marked hypotension	
Heart rate	Normal	Slight tachycardia (> 100 bpm)	Tachycardia (> 120 bpm)	Extreme tachycardia (>140 bpm)	
Respiratory rate	Normal	Increased (> 20)	Tachypnoea (> 30)	Extreme tachypnoea	
Mental status	Normal	Slight anxiety, restless	Altered, confused	Decreased consciousness, lethargy, or coma	
Urine output	Normal	20-30 mL/hour	Less than 20 ml/hour	No urine output	

It may be difficult to remember all these values and features of stages of hypovolemic shock. The best suggestion is to just memorise the heart rate and base your answer on that. The examination questions usually would give a history of blood loss and the patient's heart rate.



	<p><i>With the heart rate alone, you should be able to tell which clinical stage he is in. You would also need to memorize the amount of blood loss in each stage e.g. 30-40% in stage 3.</i></p>
10.	<p>A 12-year-old comes into the emergency department with severe burns all over his body from a house fire. There is oropharyngeal swelling and soot in the mouth. He is in severe pain. What is the SINGLE most appropriate management?</p> <p>A. Refer to burn unit</p> <p>B. IV Fluids</p> <p>C. IV Antibiotic</p> <p>D. IV Analgesia</p> <p>E. Call a senior anaesthetist</p> <p><i>After major burns, if there is any evidence of impending airway obstruction (stridor, oropharyngeal swelling, call for senior ED help and a senior anaesthetist immediately. Urgent general anaesthesia and tracheal intubation may be life-saving.</i></p> <p><i>Airway, breathing, and circulation → always in this order.</i></p> <p><i>Smoke inhalation injury is a common cause of death in burn victims. Initial assessment may reveal no evidence of injury, but laryngeal oedema can develop suddenly and unexpectedly thus early intubation is warranted if there is evidence of inhalation injury.</i></p> <p><i>Signs and symptoms of smoke inhalation injury:</i></p> <ul style="list-style-type: none">- Persistent cough- Stridor- Wheezing- Black sputum suggests excessive exposure to soot- Use of accessory muscles of respiration- Blistering or oedema of the oropharynx- Hypoxia or hypercapnia
11.	<p>A 55-year-old lady comes in with severe haematemesis. She is anxious and aggressive. Her medical history includes liver disease. Her INR is 9; heart rate is 110 bpm; Systolic BP is 110 mmHg; SpO2 is 94%. What is the SINGLE most appropriate management?</p> <p>A. Oxygen</p> <p>B. IV Steroids</p> <p>C. Whole blood</p> <p>D. IV fluids</p> <p>E. Fresh frozen plasma (FFP)</p>



	<p><i>The most appropriate management here would be FFP as she has a history of liver disease and a high INR. IV fluids is a must as well but you need to read the PLAB questions very carefully. If the question had said "What is the SINGLE most initial management?", then IV fluids would be your choice. However, in this question they are asking for the "SINGLE most appropriate management". In this case, FFP would be the most appropriate.</i></p> <p><i>Oxygen should be administered as well but since the SpO2 is 94% this answer is less appropriate.</i></p> <p><i>Blood would be eventually needed if she bleeds too much. We give packed red blood cells and not whole blood.</i></p> <p><i>This lady is anxious and aggressive which are initial symptoms of hypovolaemic shock. As the hypovolaemic shock worsens, she would get drowsy, confused and later unconscious.</i></p> <p><i>Upper gastrointestinal bleeding</i></p> <p><i>Start IV fluids followed by blood as necessary. Shocked patients should receive prompt volume replacement. Red cell transfusion should be considered after loss of 30% of the circulating volume.</i></p> <p><i>If the patient is anticoagulated, or has a clotting disorder (eg due to liver disease), give vitamin K/clotting factors/fresh frozen plasma (FFP) accordingly.</i></p>
12.	<p>A 24-year-old woman has been brought to the emergency department having taken 36 tablets of paracetamol following an argument with her partner. She weighs 60 kg. She has no previous psychiatric history and is physically well. What is the SINGLE most appropriate management?</p> <p>A. Refer to social worker</p> <p>B. Admit to psychiatric ward</p> <p>C. Discharge home with advice</p> <p>D. Refer to clinical psychologist</p> <p>E. Admit to medical ward</p>



13.	<p>A 14-year-old girl has been brought to the emergency department having taken an unknown amount of paracetamol 2 hours ago. She has no previous psychiatric history and is physically well. When would be the SINGLE most appropriate time to attain plasma paracetamol concentration levels following her presentation to A&E?</p> <p>A. Immediately</p> <p>B. In 2 hours' time</p> <p>C. In 4 hours' time</p> <p>D. In 8 hours' time</p> <p>E. In 22 hours' time</p>
14.	<p>A 35-year-old man with a known peanut allergy presents to Accident & Emergency after having unknowingly ingested a cupcake with nuts. He has widespread wheezes bilaterally on auscultation and he is experiencing stridor and dyspnoea. His lips have also started to swell. IV access has been established. What is the SINGLE most appropriate immediate treatment for him?</p> <p>A. Intramuscular adrenaline 1:1000</p> <p>B. Intravenous adrenaline 1:1000</p> <p>C. Intravenous hydrocortisone</p> <p>D. Intravenous diphenhydramine</p> <p>E. Intramuscular adrenaline 1:10000</p> <p><i>Even though IV access has been established, the best treatment to resolve his hypersensitivity reaction is STILL intramuscular adrenaline.</i></p> <p><i>Anaphylaxis algorithm:</i></p> <ol style="list-style-type: none">1. ABC2. Give high-flow oxygen3. Lay the patient flat:4. Adrenaline (epinephrine) intramuscularly (IM) in the anterolateral aspect of the middle third of the thigh (safe, easy, effective). <p><i>The recommended doses for adrenaline are as follows:</i></p>



	Age	Adrenaline
	< 6 months	150 micrograms (0.15ml 1 in 1,000)
	6 months - 6 years	150 micrograms (0.15ml 1 in 1,000)
	6-12 years	300 micrograms (0.3ml 1 in 1,000)
	Adult and child > 12 years	500 micrograms (0.5ml 1 in 1,000)
	<i>Adrenaline is the most important drug in anaphylaxis and should be given intramuscularly as soon as possible. Once adrenaline is administered, hydrocortisone and chlorpheniramine should follow.</i>	
15.	<p>An 18-year-old, previously well student in his first year at university, was brought in to the emergency department in an agitated, deluded and disoriented state. What is the SINGLE most probable reason for his condition?</p> <p>A. Drug toxicity</p> <p>B. Delirium tremens</p> <p>C. Infection toxicity</p> <p>D. Electrolyte imbalance</p> <p>E. Head injury</p> <p><i>Young age and first year in university is likely to point towards drug toxicity.</i></p>	
16.	<p>A 60-year-old woman with history of a urinary tract infection, hypertension and gallstones presents to the emergency department. She complains of upper right abdominal pain, rigors and feeling unwell. Her urine dipstick is negative for white cell and nitrates. She has a temperature of 38.9°C. Her blood pressure is 88/55 mmHg, oxygen saturation of 92% on room air, pulse rate of 130 beats/minute and respiratory rate of 24 breaths/minute. What is the SINGLE most likely diagnosis?</p> <p>A. Sepsis</p> <p>B. Urinary tract infection</p> <p>C. Pre-eclampsia</p> <p>D. Septic shock</p> <p>E. Cirrhosis</p>	



	<p><i>This elderly woman has biliary sepsis probably due to a bile duct obstruction hence the upper right abdominal pain. As the urine dipstick is negative, it is unlikely that she has a UTI.</i></p> <p><i>As she was never given IV fluids, we are unable to say that she has septic shock given that the term "septic shock" is defined as persistently low blood pressure which has failed to respond to the administration of intravenous fluids.</i></p> <p><i>The very important term to note in this stem is "rigors". Rigors are episode of shaking or exaggerated shivering and is classically seen in 2 scenarios:</i></p> <ul style="list-style-type: none">- Bacteraemia such as seen in biliary sepsis or sepsis from pyelonephritis- Malaria
17.	<p>A 31-year-old man was knocked down during a fight in the waiting room of the emergency department. He is now unconscious and unresponsive. What is the SINGLE most important first action?</p> <p>A. Turn patient and put in recovery position</p> <p>B. Airway management</p> <p>C. Blood pressure measurement</p> <p>D. Assess Glasgow Coma Scale</p> <p>E. Initiate cardiac compressions</p> <p><i>In this question, the examiners want you to know the basics of life-threatening emergencies. ABC - airway, breathing, circulation should always be addressed first.</i></p>
18.	<p>A 15-year-old girl is admitted in the medical ward after taking 28 tablets of paracetamol with a large amount of alcohol. Her plasma paracetamol concentration taken 4 hours' post ingestion is just below the concentration that would suggest treatment with N-acetylcysteine. What is the SINGLE most appropriate next course of action?</p> <p>A. Refer to psychiatric team</p> <p>B. Discharge home</p> <p>C. Start N-acetylcysteine</p> <p>D. Activated charcoal</p> <p>E. Liver transplant</p>



Referral to psychiatric team would be the most accurate option here. Acute alcohol consumption is an inhibitor of P-450 enzyme system. Since she has consumed a large amount of alcohol acutely, the risk of fatal effects of paracetamol poisoning would be reduced. Not to mention that her plasma paracetamol concentration is below the treatment line thus she does not need to start N-acetylcysteine.

She does however need a psychiatric evaluation before she leaves the hospital as she was clearly trying to harm herself.

Paracetamol (acetaminophen) poisoning

Initial features → Nausea, vomiting, pallor

After 24 hours → Hepatic enzymes rise

After 48 hours → Jaundice, an enlarged, tender liver

Hypoglycaemia, hypotension, encephalopathy, coagulopathy, coma may also occur.

When to discharge home?

- *If ingestion of paracetamol is < 150mg/kg in a child/adult with no hepatic risk factors*

When to admit?

- *Admit those presenting within 8h of ingesting >150mg/kg (or an unknown amount)*

(For the exam, it can be quite time consuming to multiply 150mg with the weight of the patient. So we would advise you to use the number 24 as a benchmark whereby if the patient consumes more than 24 tablets (12 g) of paracetamol, then you admit him/her)

When to do a serum paracetamol concentration?

- *At ≥4h post ingestion if consumed >150mg/kg (or an unknown amount)*

When to give activated charcoal?

- *If presenting < 1h, and >150mg/kg of tablets ingested*

When to give N-acetylcysteine?

- *If there is a staggered overdose (Note: a staggered overdose is if all the tablets were not taken within 1 hour); or*
- *If there is doubt over the time of paracetamol ingestion, regardless of the plasma paracetamol concentration; or*
- *If plasma paracetamol concentration (taken 4 hours' post ingestion) is above the appropriate line*
- *If patients present late (>8h) and ingested dose is >150mg/kg, (or dose is unknown)*



19. A 70-year-old male presents with a 2-day history of productive cough and shortness of breath. He complains of chills and rigors. He is ill-looking. He has a temperature of 38.5°C, respiratory rate of 26 breaths/minute, and a pulse rate of 125 beats/min. His blood pressure is 88/45 mmHg and oxygen saturation is 90% on room air. On auscultation, bronchial breath sounds are heard in the periphery. He is given a fluid challenge of 1L normal saline. His blood pressure post fluid challenge is 90/40 mmHg. What is the SINGLE best term to use in his condition?
- A.
Sepsis
- B.
Severe sepsis
- C.
Septic shock
- D.
Systemic inflammatory response syndrome (SIRS)
- E.
Infection

Although, infection, sepsis, severe sepsis and SIRS are correct terms to use, the best term in this case is septic shock.

Septic shock is defined as severe sepsis with persistently low blood pressure which has failed to respond to the administration of intravenous fluids.

Sepsis vs SIRS

Sepsis	SIRS - Systemic inflammatory response syndrome
<p>Sepsis is defined as a life-threatening organ dysfunction caused by a dysregulated host response to infection</p> <p>Septic shock is defined as:</p> <ul style="list-style-type: none">Persistently low blood pressure which has failed to respond to the administration of intravenous fluids <p>Evaluation for 'Red Flag' sepsis</p> <ul style="list-style-type: none">Systolic blood pressure < 90 mmHg (or >40 mm Hg fall from baseline)Heart rate >130 beats/minuteOxygen saturations < 91% (< 88% in COPD)Respiratory rate >25 breaths/minuteResponds only to voice or pain/unresponsiveLactate >2.0 mmol	<p>SIRS may occur as a result of an infection (bacterial, viral or fungal) or in response to a non-infective inflammatory cause, for example burns or pancreatitis</p> <p>Requires 2 of the following:</p> <ul style="list-style-type: none">Body temperature less than 36°C or greater than 38.3°CHeart rate greater than 90 beats/minuteRespiratory rate greater than 20 breaths/minuteBlood glucose > 7.7mmol/L in the absence of known diabetesWhite cell count less than 4 or greater than 12



- Urine output < 0.5 ml/kg/hr for ≥ 2 hours

Sepsis Six → Take 3, Give 3

Take 3

- Blood cultures
- FBC, urea and electrolytes, clotting, lactate
- Start monitoring urine output

Give 3

- High flow oxygen
- Intravenous fluid challenge
- Intravenous antibiotics

Sepsis has always been hard to define and many diagnostic criterias has been proposed. There are a few terms of which definitions will help you understand the topic of sepsis.

How is organ dysfunction identified?

At the bedside, organ dysfunction is identified by an increase in the Sequential (Sepsis-related) Organ Failure Assessment (SOFA) score of 2 points or more.

What is qSOFA?

In emergency department, or general hospital ward settings, adult patients with suspected infection can be rapidly identified as being more likely to have poor outcomes typical of sepsis if they have at least 2 of the following clinical criteria that together constitute a new bedside clinical score termed quickSOFA (qSOFA):

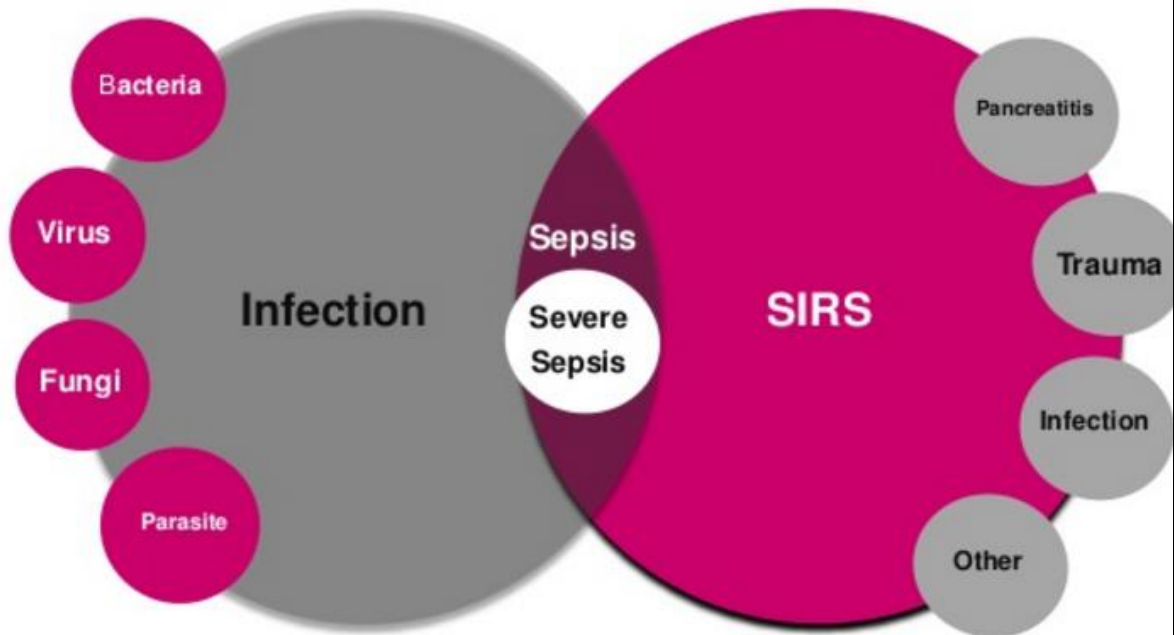
- Respiratory rate of ≥ 22 /min
- Altered mentation
- Systolic blood pressure ≤ 100 mmHg

qSOFA is becoming increasingly popular in UK hospitals to screen for sepsis and in future, may be more important than NEWS score.

OLD TERMS

"Severe sepsis" are terms of the past that are no longer in use

"SIRS" is also a term that is no longer used clinically



20. A 9-year-old girl is brought by her mother to the A&E with stridor, wheezing and a rash. Her lips are beginning to swell. The young girl came from visiting her friend at her farm house. What is the SINGLE most appropriate treatment?

- A.
0.15 ml adrenaline intramuscularly
B.
0.3 ml adrenaline intramuscularly
C.
0.5 ml adrenaline intramuscularly
D.
0.3 ml adrenaline orally
E.
Intravenous chlorpheniramine

Adrenaline is by far the most important drug in anaphylaxis and should be given as soon as possible. This girl is 9 years old hence 0.3ml of adrenaline is appropriate for her age (6 to 12 years old).



21.	<p>A 12-year-old girl when playing in the garden accidentally stepped on a hive and was bitten several times. She has numerous wheals on her body and complains of severe itching which is worsening in the last few hours. What is the SINGLE most appropriate management?</p> <p>A. Oral antihistamine</p> <p>B. IV antihistamine</p> <p>C. IM adrenaline</p> <p>D. Oral ciprofloxacin</p> <p>E. Reassurance</p> <p><i>This girl is suffering from urticaria. Oral antihistamines would be indicated.</i></p> <p><i>Since this is an allergic reaction, the only two reasonable options are A and C in this question. However, in the context of allergic reactions, IM adrenaline should only be used in anaphylactic shock whereby the patient would have breathing difficulties.</i></p> <p><i>The followings are the indications of adrenaline in anaphylaxis:</i></p> <ol style="list-style-type: none"><i>1. Hoarseness of voice</i><i>2. Wheeze</i><i>3. Shortness of breath</i><i>4. Shock</i><i>5. Stridor</i><i>6. Swelling of the tongue and cheek</i><i>7. Facial swelling</i> <p><i>If you see an urticaria like allergic reaction, with none of the following indications stated above for adrenaline, then pick the oral antihistamine as the answer.</i></p>
22.	<p>Parents of an 11-month-old baby want to know the steps for CPR for their child as they have recently attended a funeral of their neighbour's child who died very suddenly after an episode of apnoea. They want to know what they can do if an event like this occurs. What is the SINGLE most appropriate advice in regards to CPR for their child?</p> <p>A. Index and middle finger compression</p> <p>B. Compression with heel of one hand</p> <p>C. Compression with heel of two hands with fingers interlocked</p> <p>D. Compression with rescue breaths 30:2</p> <p>E. Give 2 rescue breaths before starting compression</p>



This is a rare scenario in PLAB that you may encounter where both the answers are correct. Both A and D are appropriate advice to give to the parents of the child. The doctors that write the PLAB test questions may have written them prior to publishing new guidelines and this may be overlooked by the organizers. When this occurs, the organizers for the PLAB test will award marks for both answers when evaluating the papers. This is a very rare event but may still occur. Thus, do not spend too much time trying to decide which is the right or wrong option between the two.

For health care provider and layperson

CPR should be started with the C:V ratio that is familiar and for most, this will be 30:2. The paediatric modifications to adult CPR should be taught to those who care for children but are unlikely to have to resuscitate them. The specific paediatric sequence incorporating the 15:2 ratio is primarily intended for those who have the potential to resuscitate children as part of their role.

In the case above, the parents are unlikely to need to resuscitate their child and a CPR C:V ratio that is familiar which is 30:2 is appropriate. Note: that if you were a paediatrician you should be doing a C:V ratio of 15:2 as you potentially need to resuscitate children as part of your role.

Note there are two options for chest compression. Either index and middle finger of one hand or grip the chest in both hands in such a way that two thumbs can press on the lower third of the sternum.

Chest compression in infants:

- *The lone rescuer should compress the sternum with the tips of two fingers.*
- *If there are two or more rescuers, use the encircling technique:*
 - a. *Place both thumbs flat, side-by-side, on the lower half of the sternum (as above), with the tips pointing towards the infant's head.*
 - b. *Spread the rest of both hands, with the fingers together, to encircle the lower part of the infant's rib cage with the tips of the fingers supporting the infant's back.*
 - c. *Press down on the lower sternum with your two thumbs to depress it at least one-third of the depth of the infant's chest, approximately 4 cm.*

Chest compression (only to be started after successful lung inflation). Aim for a rate of 100/min.



23.	<p>A 21-year-old lady after a heavy bout of drinking last night comes to the emergency department with vomiting blood, feeling dizzy, and having intense abdominal pain. On examination, her limbs feel cold. After initial resuscitation with oxygen and fluids, she still continues to bleed and continues to vomit blood. She has a pulse of 130 beats/minute and blood pressure of 85/58 mmHg. What is the SINGLE next best step?</p> <p>A. Clotting screen B. Ultrasound C. Computed tomography D. Endoscopy E. Intravenous omeprazole</p> <p><i>This is a classic presentation of Mallory-Weiss syndrome (MWS). It is characterised by upper gastrointestinal bleeding (UGIB) from mucosal lacerations in the upper gastrointestinal tract, usually at the gastro-oesophageal junction or gastric cardia. Excessive alcohol ingestion is one of the main causes as prolonged or forceful bout of vomiting can cause a tear in the upper gastrointestinal tract.</i></p> <p><i>Light-headedness and dizziness and features associated with the initial cause of the vomiting - eg, abdominal pain may be seen and are seen in this stem.</i></p> <p><i>Resuscitation is a priority - maintain airway, provide high-flow oxygen, correct fluid losses by giving IV fluids. Intravenous blood can also be given in severe cases.</i></p> <p><i>Haemodynamically unstable patients like in this stem should have endoscopy immediately after resuscitation. It is the primary diagnostic investigation and can be used to stop the bleeding.</i></p> <p><i>Note proton pump inhibitor (PPI) use is not recommended prior to diagnosis by endoscopy. A Cochrane review found PPI use at this stage was not associated with a reduction in re-bleeding, need for surgery or mortality.</i></p>
24.	<p>A 10-year-old boy is rushed to Accident & Emergency after his parents found him unconscious on the kitchen floor. It is revealed that he ingested some medication belonging to his grandmother. His grandmother was unable to identify which medications are missing. On examination, the child is hypotensive with dilated pupils and dryness in the mouth. His ECG showed prolongation of the PR, QRS and QT intervals. Which SINGLE most likely medication has he taken in excess?</p> <p>A. Amitriptyline B. Carbamazepine C. Digoxin D. Metoprolol E. Thiazide</p>



	<p><i>The key to this question is trying to figure out what medication this child has taken and try to tie it in with his signs and symptoms</i></p> <p><i>Amitriptyline: causes drowsiness, hypothermia, hypotension, tachycardia, dry mouth, ECG shows arrhythmias, particularly changes in the QRS width, dilated pupils</i></p> <p><i>Carbamazepine: causes mydriasis and nystagmus, tachycardia, hypotension</i></p> <p><i>Digoxin: The classic features of digoxin toxicity are nausea, vomiting, diarrhoea, abdominal pain, headache, dizziness, confusion, delirium, vision disturbance (blurred or yellow vision). It is also associated with cardiac disturbances including irregular heartbeat, ventricular tachycardia, ventricular fibrillation, sinoatrial block and AV block</i></p> <p><i>Metoprolol: bradycardia, hypotension, hypothermia, hypoglycaemia (especially in children), and seizures. Myocardial conduction delays with decreased contractility typify the acute beta-blocker ingestion.</i></p> <p><i>Thiazide: hypotension, fever, frequent urination, hypotension, muscle cramps and twitching</i></p> <p><i>The two best contenders are amitriptyline and carbamazepine. However, the single best choice would be Amitriptyline because of the ECG changes.</i></p>
25.	<p>A 30-year-old patient is brought to the emergency department after a road traffic accident. He has multiple bruises on his chest and paradoxical breathing is observed. A chest X-ray shows a widened mediastinum and right-sided pulmonary contusion. He has a pulse of 129 beats/minute, a blood pressure of 100/70 mmHg and a respiratory rate of 38 breaths/minute. He has severe chest pain and is dyspnoeic. What is the SINGLE best management for his condition?</p> <p>A. 16-gauge needle into the 2nd intercostal space on the left</p> <p>B. Intercostal block anaesthesia</p> <p>C. Endotracheal intubation and positive-pressure ventilation</p> <p>D. 16-gauge needle into the 4th intercostal space on the right</p> <p>E. Consent the patient for surgery</p> <p><i>To know the correct management, we first have to know what injury this patient is suffering from. This patient has a flail chest.</i></p> <p><i>Flail Chest:</i> <i>A flail chest occurs as a result of a trauma to the chest, leading to at least 3 ribs becoming fractured or broken, close together, with pieces of bone detaching from the chest wall. These</i></p>



	<p><i>segments of bone start to move independently of the chest wall and in the opposite direction because of lung pressure. The result is a “paradoxical respiration”</i></p> <p><i>Cause:</i></p> <ul style="list-style-type: none">- <i>Fall (for example, off a bicycle or a horse)</i>- <i>Blunt trauma to the chest</i>- <i>Car accident</i>- <i>Bone disease in the elderly.</i> <p><i>Diagnosis:</i> <i>Paradoxical respiration with shortness of breath and chest pain in a patient who has just had blunt chest trauma raises the suspicion of a flail chest. Diagnosis is made on chest X-ray</i></p> <p><i>Management:</i></p> <ol style="list-style-type: none"><i>Humidified oxygen</i><i>Analgesia - paracetamol / NSAIDS / Opiates / intercostal block / thoracic epidural (up to T4) + splinting of injury</i><i>Intubation / mechanical ventilation - if worsening fatigue and RR</i>
26.	<p>A 47-year-old man was involved in a road traffic accident and was brought to the emergency department by ambulance. He has signs of respiratory distress and has abdominal and chest pain. On physical examination, no breath sounds are heard over the entire left lung field. A nasogastric tube is seen curled into the left chest on a chest X-ray. What is the SINGLE most likely diagnosis?</p> <p>A. Diaphragm rupture</p> <p>B. Pneumothorax</p> <p>C. Splenic rupture</p> <p>D. Bowel perforation</p> <p>E. Gastric perforation</p> <p><i>Diaphragmatic rupture (also called diaphragmatic injury or tear) is a tear of the diaphragm. It is usually secondary to blunt trauma. The usual case would be someone in a car passenger seat involved in a car accident where the seat belt compression causes a burst injury directed to the diaphragm. The pressure within the abdomen raises so quickly with a sudden blow to the abdomen causing a burst in the diaphragm. It is commonly on the left side.</i></p> <p><i>Signs and symptoms include chest and abdominal pain, and respiratory distress. Breath sounds on the side of the rupture may be diminished. Bowel sounds may be heard in the chest.</i></p> <p><i>For your own knowledge, it is important to remember that chest X-ray to diagnose diaphragmatic rupture is actually quite unreliable and has low sensitivity and low specificity.</i></p>



	<p><i>However, there are specific signs detectable on X-ray which should raise suspicion. Diaphragmatic rupture is suspected in any patient with a blunt trauma and a raised left hemi diaphragm on a chest X-ray. Air fluid levels in the chest may also be seen. A nasogastric tube from the stomach may appear on the film in the chest cavity. This particular sign with the NG tube curled into the left chest is pathognomonic for diaphragmatic rupture, but it is rare.</i></p> <p><i>Thoracoabdominal CT scan is usually diagnostic.</i></p>
27.	<p>A 9-month-old child aspirated a foreign object which was removed at the hospital. The child is now fine. His parents would like to know what they should do should this occur again. What is the SINGLE most appropriate advice to give them?</p> <p>A. Heimlich manoeuvre</p> <p>B. Turn the infant into a supine position and give chest thrust</p> <p>C. Turn the infant on his back and give five thrust to the middle of the back</p> <p>D. Place a clenched fist between the umbilicus and xiphisternum and give abdominal thrusts</p> <p>E. Turn infant into recovery position and open infant's mouth</p> <p><u><i>Choking and Foreign Body Airway Obstruction (FBAO) in Infants</i></u></p> <p><u><i>For infants:</i></u></p> <ul style="list-style-type: none">- <i>In a seated position, support the infant in a head-downwards, prone position to let gravity aid removal of the foreign body;</i>- <i>Deliver up to five sharp blows with the heel of your hand to the middle of the back (between the shoulder blades);</i>- <i>After five unsuccessful back blows, use chest thrusts: turn the infant into a supine position and deliver five chest thrusts. These are similar to chest compressions for CPR, but sharper in nature and delivered at a slower rate.</i>
28.	<p>A 32-year-old man rescued from a building on fire presents unconscious without any evidence of burns and external injury. What is the SINGLE most appropriate management?</p> <p>A. Tight-fitting mask with 100% oxygen</p> <p>B. 24% oxygen by face mask</p> <p>C. Hyperbaric oxygen in a hyperbaric chamber</p> <p>D. Intubate and provide IPPV on 100% oxygen</p> <p>E. Refer to specialist unit</p>



As this patient is unconscious, we need to intubate and provide IPPV on 100 % O₂. For a conscious patient use a tight-fitting mask with an O₂ reservoir.

The decision for hyperbaric oxygen therapy (HBOT) is a difficult one and there are many debates about the added value provided by hyperbaric oxygen. As this patient is unconscious one might suggest a transfer to a hyperbaric chamber but even so, this will take time as you would need to call the Poisons Information Service and find the nearest locations of hyperbaric chambers. In the current NICE guidelines, treatment with hyperbaric oxygen is not currently recommended, because there is insufficient evidence that hyperbaric oxygen therapy improves long-term outcomes of people with severe carbon monoxide poisoning, compared with standard oxygen therapy. Thus, based on NICE guidelines, for any question with CO₂ poisoning, hyperbaric oxygen therapy will NOT be the answer.

If this question was rewritten and asked for “What is the SINGLE most appropriate INITIAL management?”, then mask with 100% oxygen would be a valid answer because one would give 100% oxygen by mask first while preparing for intubation.

Carbon monoxide poisoning: Carbon monoxide (CO) is a tasteless and odourless gas produced by incomplete combustion. Poisoning may occur from car exhausts, fires and faulty gas heaters. CO is also produced by metabolism of methylene chloride (used in paint strippers and as an industrial solvent).

CO decreases the oxygen-carrying capacity of the blood by binding haemoglobin (Hb) to form carboxyhaemoglobin (COHb). This impairs O₂ delivery from blood to the tissues thus causing severe tissue hypoxia.

Clinical features - Early features are:

- Headache
- Malaise
- Nausea and vomiting

In severe toxicity:

- 'Pink' skin and mucosae
- Hyperpyrexia
- Arrhythmias
- Coma with hyperventilation

Management:

Note: The elimination half-life of CO is about 4 hours on breathing air, 1 hour on 100% O₂, and 23 minutes on O₂ at 3 atmospheres pressure.

- Clear the airway
- Maintain ventilation with high concentration of O₂
- For a conscious patient use a tight-fitting mask with an O₂ reservoir, but if unconscious intubate and provide IPPV on 100% O₂



	<p><u>Indications for hyperbaric oxygen therapy (HBOT)</u></p> <p><i>There is debate about the added value provided by hyperbaric oxygen. Hyperbaric O₂ therapy is logical, but of no proven benefit for CO poisoning. Transfer to a hyperbaric chamber and pressurization may take hours and so hyperbaric treatment may be no more effective than ventilation on 100 % normobaric O₂. Caring for a critically ill patient in a small pressure chamber may be impracticable.</i></p> <p><i>A COHb concentration of >20% should be an indication to CONSIDER hyperbaric oxygen and the decision should be taken on the basis of the indicators listed below:</i></p> <p><i>Loss of consciousness at any stage</i></p> <p><i>Neurological signs other than headache</i></p> <p><i>Myocardial ischaemia/arrhythmia diagnosed by ECG</i></p> <p><i>The patient is pregnant.</i></p> <p><i>If there are any of the indications stated above, discuss with a Poisons Information Service and consider hyperbaric treatment. The Poisons Information Service can advise on the location of hyperbaric chambers. But note currently, the treatment with hyperbaric oxygen is not currently recommended by NICE guidelines, because there is insufficient evidence that hyperbaric oxygen therapy improves long-term outcomes of people with severe carbon monoxide poisoning, compared with standard oxygen therapy.</i></p>
29.	<p>A 21-year-old man, who was heavily drinking a few hours ago at an evening party presents to A&E with a history of vomiting repeatedly during the night. He vomited fresh blood an hour ago. His vitals are stable and his Hb is 15.3 g/dl. He has no further bleeding. What is the SINGLE most appropriate management?</p> <p>A. Admit and observe</p> <p>B. Discharge with advice</p> <p>C. Endoscopy</p> <p>D. Cross match 2 units of blood</p> <p>E. Administer vasopressin analogue</p> <p><i>This patient has Mallory-Weiss tears from drinking too much alcohol.</i></p> <p><i>As he is vitally stable, and haemoglobin count is high. The best plan is to discharge him home with advice.</i></p> <p><i>This is a very high yield question. Occasionally, the option of "discharge with advice" is not there, in which case they would provide other correct options such as:</i></p> <ul style="list-style-type: none">- Repeat FBC- Observe vital signs for deterioration



30. An 18-year-old girl has taken an unknown dose of paracetamol yesterday. She cannot remember the exact time she took the tablets. She is extremely anxious but otherwise asymptomatic. She has no past medical history. She weighs 55kg. BP 120/75 mmHg, heart rate is 100 bpm, SaO₂ 99% on air. Which is the SINGLE most appropriate next step?

- A.
Activated charcoal
- B.
Gastric lavage
- C.
N-acetylcysteine infusion**
- D.
Discharge home
- E.
Psychiatric review

N-acetylcysteine infusion should be started if there is doubt over the time of paracetamol ingestion, regardless of the plasma paracetamol concentration

The other options are incorrect:

Activated charcoal → should be considered if the overdose has been taken within 1 hour

Gastric lavage → Would always be the wrong answer when dealing with paracetamol poisoning. The British Poisons Centres only recommend the use of gastric lavage cases where medications have been ingested that activated charcoal would absorb poorly (eg iron, lithium) and for sustained-release formulations or enteric-coated tablets.

Discharge home → Only if ingestion of paracetamol is < 150mg/kg in a child/adult with no hepatic risk factors

Urgent liver function tests + clotting screen → often no change in these values acutely.

Psychiatric review → would be needed eventually but much later in the management

Paracetamol (acetaminophen) poisoning

Initial features → Nausea, vomiting, pallor

After 24 hours → Hepatic enzymes rise

After 48 hours → Jaundice, an enlarged, tender liver

Hypoglycaemia, hypotension, encephalopathy, coagulopathy, coma may also occur.

When to discharge home?

- *If ingestion of paracetamol is < 150mg/kg in a child/adult with no hepatic risk factors*

When to admit?

- *Admit those presenting within 8h of ingesting >150mg/kg (or an unknown amount)*



	<p><i>(For the exam, it can be quite time consuming to multiply 150mg with the weight of the patient. So we would advise you to use the number 24 as a benchmark whereby if the patient consumes more than 24 tablets (12 g) of paracetamol, then you admit him/her)</i></p> <p><i>When to do a serum paracetamol concentration?</i></p> <ul style="list-style-type: none">- <i>At ≥ 4h post ingestion if consumed >150mg/kg (or an unknown amount)</i> <p><i>When to give activated charcoal?</i></p> <ul style="list-style-type: none">- <i>If presenting < 1h, and >150mg/kg of tablets ingested</i> <p><i>When to give N-acetylcysteine?</i></p> <ul style="list-style-type: none">- <i>If there is a staggered overdose (Note: a staggered overdose is if all the tablets were not taken within 1 hour); or</i>- <i>If there is doubt over the time of paracetamol ingestion, regardless of the plasma paracetamol concentration; or</i>- <i>If plasma paracetamol concentration (taken 4 hours' post ingestion) is above the appropriate line</i>- <i>If patients present late (>8h) and ingested dose is >150mg/kg, (or dose is unknown)</i>
31.	<p>A 21-year-old man has been found unconscious in an alleyway with a respiratory rate of 5 breaths/minute and a pulse of 55 beats/minute. His pupils are constricted. What is SINGLE most appropriate management?</p> <p>A. Methadone</p> <p>B. Naloxone</p> <p>C. Flumazenil</p> <p>D. Thiamine</p> <p>E. Dextrose</p> <p><i>This is a classic case of opioid overdose. The word "alleyway" already gives the answer away. Respiratory depression, bradycardia and miotic pupils support the clinical picture. Naloxone is used to block the effects of opioids, especially in overdose.</i></p>



32.	<p>A 24-year-old male presents to A&E with 40% partial thickness burns. His pulse rate is 105 bpm and respiratory rate is 25 breaths per minute. His systolic blood pressure is 80 mmHg. What is the SINGLE most appropriate management?</p> <p>A. IV fluids calculated from the time of hospital arrival</p> <p>B. IV fluids calculated from the time of burn</p> <p>C. Oral rehydration</p> <p>D. IV dextrose stat</p> <p>E. Ointments</p> <p><i>We use the Parkland formula to count the fluids required after burns. This is calculated from the time of the burn rather than the time of presentation. If the presentation is delayed, fluid may need to be given more rapidly</i></p> <p><i>PARKLAND FORMULA: Fluid Requirements = Body area burnt (%) x Wt (kg) x 4mL. (use Hartmann's). Give 1/2 of total requirements in 1st 8 hours, then give 2nd half over next 16 hours.</i></p> <p><i>The area of body burn is calculated by adding the percentage of burns in each area using the rule of 9's:</i></p> <p><i>9% head and neck, 9% each upper limb, 18% each lower limb, 18% front of trunk, 18% back of trunk, 1% Palmar surface of the hand, including fingers, 1% Perineum</i></p>
33.	<p>A 35-year-old man had a fight in a bar which involved blunt trauma to his head. Since the injury, he has developed bleeding from the auditory meatus associated with ringing and hearing loss in his ear. Clear fluid is seen coming from his nose. What is the SINGLE most appropriate investigations of choice?</p> <p>A. Computed tomography scan of brain</p> <p>B. X-ray skull</p> <p>C. Otoscopy</p> <p>D. Magnetic resonance imaging of head</p> <p>E. Coagulation study</p> <p><i>Any suspicion of a base of skull fracture should prompt a CT scan of the brain. The bleeding from ear from auditory meatus and rhinorrhoea are signs of basilar skull fracture.</i></p>



	<p><i>Signs of base of skull fracture - Often a clinical diagnosis. One or more of the following may be seen:</i></p> <ul style="list-style-type: none">- <i>Bilateral orbital bruising confined to the orbital margin ('Raccoon eyes')</i>- <i>Subconjunctival haemorrhage</i>- <i>Haemotympanum or bleeding from the auditory meatus</i>- <i>CSF otorrhoea or rhinorrhoea (sometimes with anosmia)</i>- <i>Battle's sign: bruising over the mastoid process without local direct trauma follows petrous temporal bone fracture, this can sometimes take several days to appear</i> <p><i>CT scan for adults if:</i></p> <ul style="list-style-type: none">- <i>Glasgow Coma Scale (GCS) < 13 when first assessed or GCS < 15 two hours after injury</i>- <i>Suspected open or depressed skull fracture</i>- <i>Signs of base of skull fracture</i>- <i>Post-traumatic seizure</i>- <i>Focal neurological deficit</i>- <i>More than 1 episode of vomiting</i>- <i>Coagulopathy or on oral anticoagulants</i>
34.	<p>A 24-year-old man was under the custody of police when he was punched. He is now cyanosed and unresponsive. What is the SINGLE most appropriate initial action?</p> <p>A. IV fluids</p> <p>B. Clear airway</p> <p>C. Turn patient and put in recovery position</p> <p>D. Give 100% oxygen</p> <p>E. Analgesia</p> <p><i>In this question, the examiners want you to know the basics of life-threatening emergencies. ABC - airway, breathing, circulation should always be addressed first.</i></p>
35.	<p>An 8-year-old boy is rushed into A&E coughing, cyanosed and with a urticaria rash. His mother tells the staff that he began to cough after eating a cookie at a garden party. What is the SINGLE most likely diagnosis?</p> <p>A. Aspiration of food</p> <p>B. Allergic reaction</p> <p>C. Diffuse Esophageal Spasm</p> <p>D. Tracheoesophageal fistula</p> <p>E. Achalasia</p>



This boy is having anaphylaxis which is a type of allergic reaction.

The other options are far less likely:

Aspiration of food → Although this makes sense and many will choose this, aspiration of food will not account for the urticarial rash seen on this boy.

Diffuse Esophageal Spasm → usually presents with intermittent chest pain and dysphagia. The pain can simulate that of a myocardial infarction, but it bears no relationship with exertion. There is no relationship with eating, ruling out odynophagia. The pain can be precipitated by drinking cold liquids.

Tracheoesophageal fistula → is suggested in a newborn by copious salivation associated with choking, coughing, vomiting, and cyanosis coincident with the onset of feeding.

Achalasia → presents with slowly progressive dysphagia. Initially worse for liquids than solids. Frequent regurgitation of undigested food is common in late disease. Secondary recurrent respiratory infections can occur due to aspiration. Achalasia cannot present suddenly like in this scenario.

Anaphylaxis:

- *Clinical features: The speed of onset and severity vary with the nature and amount of the stimulus, but the onset is usually in minutes/hours.*
- *Respiratory: Swelling of lips, tongue, pharynx, and epiglottis may lead to complete upper airway occlusion. Lower airway involvement is similar to acute severe asthma e.g. dyspnoea, wheeze, chest tightness, hypoxia, and hypercapnia.*
- *Skin: Pruritus, erythema, urticaria, and angio-oedema.*
- *Cardiovascular: Peripheral vasodilation and increased vascular permeability cause plasma leakage from the circulation, thus causing hypotension, and shock.*



36. A 33-year-old woman has recurring tightness in her chest accompanied by palpitations and sweating. These episodes occur several times a week and are associated with increased respiratory rate and tingling and numbness around the mouth and fingers. What is the SINGLE most likely diagnosis?

- A.
Pericarditis
- B.
Stable angina
- C.
Panic attack**
- D.
Gastro-oesophageal reflux disease
- E.
Aortic aneurysm

In panic attacks, perioral paresthesia, tingling and numbness in the hands can occur due to hyperventilation and CO₂ washout leading to low ionic calcium. The description of tightening with palpitations fits with panic attacks.

Panic attacks

Period of intense fear characterized by a constellation of symptoms that develop rapidly, reach a peak of intensity in about 10min, and generally do not last longer than 20–30min (rarely over 1 hour). Attacks may be either spontaneous ('out of the blue') or situational (usually where attacks have occurred previously).

Symptoms/signs

- Tremor
- Tachycardia
- Tachypnoea,
- Sweating
- Concerns of death from cardiac or respiratory problems

They may complain of dizziness, circumoral paraesthesia, carpopedal spasm, and occasionally sharp or stabbing chest pain. Initial examination would reveal tachypnoea with equal air entry over both lung fields, and no wheeze or evidence of airway obstruction. It is important to consider secondary causes (such as PE or DKA). Therefore, perform the following investigations:

- SpO₂
- ECG
- ABG if SpO₂ ↓, or if symptoms do not completely settle in a few minutes
- BMG



	<p><i>If symptoms do not completely settle in a few minutes, obtain:</i></p> <ul style="list-style-type: none">• CXR• U&E, blood glucose, FBC <p><u><i>Treatment</i></u></p> <p><i>Do not sedate a patient who is hyperventilating. Once serious diagnoses have been excluded, use this information to help reassure the patient with primary hyperventilation. Often this is all that is required, but it may be helpful to try simple breathing exercises (e.g. breathe in through nose)</i></p>
37.	<p>A 16-year-old girl has taken an overdose of 34 paracetamol tablets earlier this morning. She is extremely anxious but otherwise asymptomatic. She has no past medical history. Paracetamol plasma levels were taken at 4 hours from time of overdose and is above the treatment line. She weighs 55kg. BP 120/75 mmHg, heart rate is 100 bpm, SaO₂ 99% on air. Which is the SINGLE most appropriate next step?</p> <p>A. Activated charcoal</p> <p>B. Gastric lavage</p> <p>C. N-acetylcysteine infusion</p> <p>D. Discharge home</p> <p>E. Urgent liver function tests + clotting screen</p>
38.	<p>A 34-year-old man had a car crash and is being observed in the emergency department. He is slowly deteriorating and his GCS has fallen from 13 to 7. What is the SINGLE most appropriate next step in management?</p> <p>A. CT</p> <p>B. Burr hole</p> <p>C. MRI</p> <p>D. Intubation</p> <p>E. IV fluids</p> <p><i>Intubate and ventilate all patients with GCS 8 or less. This should be done first before anything else. (ABC protocol)</i></p>



39.	<p>A 31-year-old man was involved in a road traffic accident and has severe pain at the right outer upper thigh and groin. There is clear deformity of the hip and shortening of the right leg. A femoral shaft fracture is suspected. His blood pressure is 100/70 mmHg. He has a heart rate of 90 beats/minute and a respiratory rate of 19 breaths/minute. He is saturating at 97% at room air. What is the SINGLE most appropriate next action?</p> <p>A. Anteroposterior pelvic and lateral hip X-rays</p> <p>B. Intravenous fluids</p> <p>C. Thomas' splint</p> <p>D. Full blood count and cross match</p> <p>E. Magnetic resonance imaging (MRI)</p> <p><i>In any trauma associated emergency, including fractures of the shaft of the femur, we should apply Advanced Trauma Life Support principles and attend to the femur only once we are happy with our ABCDEs. As this patient is clinically stable, we should move on to attend the femur by splinting it.</i></p> <p><i>Intravenous fluids, full blood count and cross match would also be performed but since in this question, he is clinically stable, we should perform a Thomas' splint first. Putting a splint will improve alignment and reduce ongoing blood loss. Blood loss in a femur shaft fracture is alarming as blood loss is significant. In reality, you would have more than one doctor and health care professional in this scene, thus one would be putting an IV cannula and sending bloods while the others would be splinting the leg.</i></p> <p><i>Imaging is important but can be done at a later time.</i></p>
40.	<p>A 23-year-old woman has been found unconscious by her partner. There are several packets of paracetamol and an empty bottle of vodka alongside her. When she comes to in the Emergency Department, she is confused and unable to estimate when she took the tablets. Her Glasgow Coma Scale (GCS) score is 14/15. Which is the SINGLE most appropriate next step?</p> <p>A. CT Head</p> <p>B. Haemodialysis</p> <p>C. Start N-acetylcysteine immediately</p> <p>D. Start N-acetylcysteine 4 hours after presentation</p> <p>E. Take paracetamol levels and treat if raised</p>



In cases like this where a serious overdose is suspected, give paracetamol antidote N-acetylcysteine immediately. The amount of paracetamol taken is known in this question. N-acetylcysteine infusion should be started if there is doubt over the time of paracetamol ingestion, regardless of the plasma paracetamol concentration.

The 4-hour figure refers to the time after ingestion at which plasma levels can be interpreted. If levels turn out to be below the treatment line, N-acetylcysteine can be stopped.

Paracetamol (acetaminophen) poisoning:

- *Initial features → Nausea, vomiting, pallor*
- *After 24 hours → Hepatic enzymes rise*
- *After 48 hours → Jaundice, an enlarged, tender liver*

Hypoglycaemia, hypotension, encephalopathy, coagulopathy, coma may also occur.

When to discharge home?

- *If ingestion of paracetamol is < 150mg/kg in a child/adult with no hepatic risk factors*

When to admit?

- *Admit those presenting within 8h of ingesting >150mg/kg (or an unknown amount)*

(For the exam, it can be quite time consuming to multiply 150mg with the weight of the patient. So, we would advise you to use the number 24 as a benchmark whereby if the patient consumes more than 24 tablets (12 g) of paracetamol, then you admit him/her)

When to do a serum paracetamol concentration?

- *At ≥4h post ingestion if consumed >150mg/kg (or an unknown amount)*

When to give activated charcoal?

- *If presenting < 1h, and >150mg/kg of tablets ingested*

When to give N-acetylcysteine?

- *If there is a staggered overdose (Note: a staggered overdose is if all the tablets were not taken within 1 hour); or*
- *If there is doubt over the time of paracetamol ingestion, regardless of the plasma paracetamol concentration; or*
- *If plasma paracetamol concentration (taken 4 hours' post ingestion) is above the appropriate line*
- *If patients present late (>8h) and ingested dose is >150mg/kg, (or dose is unknown)*



41.	<p>A 27-year-old man presents to the emergency department after a road traffic accident where his right foot was stuck under a truck for several hours. On examination, his right foot is swollen and tender. Sensation is reduced between the space of the 3rd metatarsal and big toe. His dorsalis pedis pulse is not felt. What is the SINGLE most likely diagnosis?</p> <p>A. Compartment syndrome</p> <p>B. Artery rupture</p> <p>C. Arterial embolism</p> <p>D. Deep vein thrombosis</p> <p>E. Fibular fracture</p> <p><i>The diagnosis here is clearly compartment syndrome given the history of the prolonged limb compression. The reason the dorsalis pedis pulse is not felt is because arterial blood inflow is reduced when pressure exceeds systolic blood pressure. Note that sensory deficit may occur in the distribution of nerves passing through the compartment which explains the reduced sensation in this stem. Muscle tenderness and swelling are also a part of the clinical features seen in compartment syndrome.</i></p> <p><u>Compartment syndrome</u></p> <p><i>Compartment syndrome is a painful and potentially serious condition caused by bleeding or swelling within an enclosed bundle of muscles (a muscle 'compartment').</i></p> <p><i>Acute compartment syndrome occurs after a traumatic injury such as a car crash. The trauma causes a severe high pressure in the compartment which results in insufficient blood supply to muscles and nerves. Acute compartment syndrome is a medical emergency that requires surgery to correct. If untreated, the lack of blood supply leads to permanent muscle and nerve damage and can result in the loss of function of the limb.</i></p>
42.	<p>A 32-year-old woman starts bleeding profusely in theatre during an elective caesarean section. She had a spinal block and was awake throughout the procedure. She is now found to be unconscious. Her BP has dropped to 70/40 mmHg. What is the SINGLE most likely diagnosis?</p> <p>A. Primary haemorrhage</p> <p>B. Reactionary haemorrhage</p> <p>C. Secondary haemorrhage</p> <p>D. Pulmonary embolism</p> <p>E. Septic shock</p>



	<p><i>Primary Haemorrhage occurs at the time of surgery. It is due to inadequate haemostasis at the time of surgery or the displacement of a tie from the inferior pedicle. Treatment involves replacing blood. If severe, return to theatre for adequate haemostasis.</i></p> <p><i>It is actually quite unlikely that a pregnant lady bleeds heavily during a caesarean section as pregnancy by itself is a thrombogenic state.</i></p> <p><i>The other options given are less likely:</i></p> <p><i>Reactionary Haemorrhage → occurs within the first 24 hours following trauma/surgery. It is usually caused by slipping of ligatures, dislodgement of clots, patient warming up after surgery causing vasodilation, on top of normalization of blood pressure. Haemostasis appears secure until BP rises and bleeding starts. Treatment usually involves replacing blood and re-exploring the wound.</i></p> <p><i>Secondary Haemorrhage → Usually caused by necrosis of an area of blood vessel, related to previous repair and is often precipitated by wound infection. It occurs 1–2 weeks post-op.</i></p> <p><i>Pulmonary embolism → There are no signs or symptoms here to indicate that this is pulmonary embolism</i></p> <p><i>Septic shock → There are no signs or symptoms of infection to indicate sepsis</i></p>
43.	<p>A 35-year-old patient is brought to the emergency department after having a road traffic accident. He has bruises on his chest. A chest X-ray shows a widened mediastinum. He has a pulse of 129 beats/minute, a blood pressure of 80/40 mmHg and a respiratory rate of 34 breaths/minute. What is the SINGLE most likely diagnosis?</p> <p>A. Myocardial infarction</p> <p>B. Abdominal aortic aneurysm</p> <p>C. Thoracic aortic rupture</p> <p>D. Flail chest</p> <p>E. Pleural effusion</p> <p><i>The condition is frequently fatal due to the profuse bleeding that results from the rupture. By far the most common site for tearing in traumatic aortic rupture is the proximal descending aorta.</i></p> <p><i>The classical findings on a chest X-ray of a aortic rupture will be widened mediastinum and displacement of the trachea. A widened mediastinum occurs when a traumatic pseudo aneurysm changes the contour of the mediastinum or more commonly when mediastinal haemorrhage or haematoma occurs.</i></p>



44. A 55-year-old woman recovering from a surgery for a toxic goitre is found to be cyanosed in the recovery room. Her neck is tense and her BP is 85/45 mmHg. There is blood oozing from the drain. What is the SINGLE most likely diagnosis?

- A.
Primary haemorrhage
- B.
Reactionary haemorrhage**
- C.
Secondary haemorrhage
- D.
Thyroid storm
- E.
Tracheomalacia

Reactionary Haemorrhage occurs within the first 24 hours following trauma/surgery. It is usually caused by slipping of ligatures, dislodgement of clots, patient warming up after surgery causing vasodilation, on top of normalization of blood pressure. Haemostasis appears secure until BP rises and bleeding starts. Treatment usually involves replacing blood and re-exploring the wound.

Hypotension, tense neck and blood oozing from drain tells us that the patient is probably bleeding. As the patient is still in recovery room, it is likely that the surgery is recent (less than 24 hours) thus the diagnosis of reactionary haemorrhage.

The other options given are less likely:

Primary Haemorrhage → Occurs at the time of surgery. It is due to inadequate haemostasis at the time of surgery or the displacement of a tie from the inferior pedicle. Treatment involves replacing blood. If severe, return to theatre for adequate haemostasis.

Secondary Haemorrhage → Usually caused by necrosis of an area of blood vessel, related to previous repair and is often precipitated by wound infection. It occurs 1–2 weeks post-op.

Thyroid storm → is an extreme form of thyrotoxicosis. This is an endocrine emergency. It is precipitated by stress, infection, surgery, or trauma. It is manifested by extreme irritability, delirium, coma, tachycardia, restlessness, vomiting, jaundice, diarrhea, hypotension, dehydration, and high fever.

Tracheomalacia → refers to tracheal weakness. It is an abnormal collapse of the tracheal walls. Tracheostomy or endotracheal intubation can damage the tracheal cartilage at the stoma or inflatable cuff site, respectively, which weakens the tracheal wall. The major symptoms and signs of TM in adults are dyspnea, cough, and sputum retention. Wheezing or stridor may also exist.



45.	<p>A 5-year-old boy with a febrile convulsion lasting eight minutes. He has been given IV lorazepam to control his seizures. What is the SINGLE most likely side effect of IV lorazepam that is potentially life threatening?</p> <p>A. Amnesia</p> <p>B. Anaphylactic shock</p> <p>C. Apnoea</p> <p>D. Bronchospasm</p> <p>E. Cardiac arrhythmia</p> <p><i>Lorazepam is a benzodiazepine. Respiratory depression is a known effect of benzodiazepine overdose. Amnesia can occur as well, but it will not be life threatening.</i></p> <p><i>Side effects of benzodiazepines include:</i></p> <ul style="list-style-type: none">- sedation- cognitive impairment- respiratory depression- hypotension- anterograde amnesia
46.	<p>A 34-year-old man was involved in a road traffic accident. Whilst in the ambulance his Glasgow Coma Scale deteriorates from a score of 13 to 9. His respiratory rate increases from 30 to 48 breaths/minute. What is the SINGLE most appropriate management?</p> <p>A. Intravenous fluids</p> <p>B. Needle thoracentesis</p> <p>C. 100% oxygen</p> <p>D. Portable X-ray</p> <p>E. Intravenous hydrocortisone</p> <p><i>He is in the ambulance. It is obvious that his demand for oxygen has increased due to an increased respiratory rate. 100% oxygen would be a suitable option as part of the initial management. One would not do a needle thoracentesis unless there were clinical features of a tension pneumothorax like a deviated trachea.</i></p>



47.	<p>A 47-year-old man had a road traffic accident and has presented to A&E with multiple injuries. On physical examination, perineal bruising was noticed. A pelvic fracture has been confirmed. He has not passed urine since the accident which was 7 hours ago. What is the SINGLE most appropriate next course of action?</p> <p>A. Urethral catheterization B. Suprapubic catheterization C. IV fluids D. IV furosemide E. Insulin</p> <p><i>The pelvic fracture and perineal bruising indicate that there may be a urethral injury. If you suspect a urethral injury, do not attempt to perform urethral catheterization. In PLAB part 1, the option of suprapubic catheterization is usually given. Pick that.</i></p> <p><i>Urethral injuries</i> <i>Posterior urethral tears are often associated with pelvic fractures. Urethral injury may also result from blows to the perineum. Look for perineal bruising and blood at the external urethral meatus and perform a rectal examination (an abnormally high-riding prostate or inability to palpate the prostate imply urethral injury).</i></p> <p><i>If urethral injury is suspected, do not attempt urethral catheterization, but refer urgently to the urology team. Some urologists perform a retrograde urethrogram to assess urethral injury, but many prefer suprapubic catheterization and subsequent imaging.</i></p>
48.	<p>A 76-year-old woman has become tired and confused following an influenza like illness. She is vomiting and with abdominal pain. She is also breathless with signs of consolidation of the left lung base. Her temperature is 39.0 °C. She has a blood pressure of 80/60 mmHg A blood count showed:</p> <p>Haemoglobin 120 g/L White cell count 19.1 x 10⁹/L Platelets 90 x 10⁹/L.</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Drug toxicity B. Delirium tremens C. Toxic shock syndrome D. Hypoglycaemia E. Electrolyte imbalance</p>



Toxic shock syndrome:

*Symptoms of toxic shock syndrome vary depending on the underlying cause. Toxic shock syndrome resulting from infection with the bacterium *Staphylococcus aureus* typically manifests in otherwise healthy individuals with high fever, accompanied by low blood pressure, malaise and confusion, which can rapidly progress to stupor, coma, and multiple organ failure.*

The characteristic rash, often seen early in the course of illness, resembles a sunburn, and can involve any region of the body, including the lips, mouth, eyes, palms and soles.

In patients who survive the initial phase of the infection, the rash desquamates, or peels off, after 10–14 days.

WBC is usually increased and platelets are decreased (platelet count $< 100,000 / \text{mm}^3$)

Signs and symptoms of toxic shock syndrome:

- Body temperature $> 38.9^\circ\text{C}$
- Systolic blood pressure $< 90 \text{ mmHg}$
- Diffuse macular erythroderma
- Desquamation (especially of the palms and soles) 1–2 weeks after onset.

Involvement of three or more organ systems:

- Gastrointestinal (vomiting, diarrhea)
- Muscular: severe myalgia or creatine phosphokinase level elevation
- Mucous membrane hyperemia
- Kidney failure
- Liver inflammation

- 49.** A 19-year-old man is rushed into A&E by his friends who left him immediately before they could be interviewed by the medical staff. He is semiconscious. His respiratory rate is 7/min, blood pressure is 120/75 mmHg, and pulse rate is 60 bpm. He is noted to have needle track marks on his arms and he has pinpoint pupils. What is the SINGLE most appropriate management?
- A. Insulin
 - B. Naloxone**
 - C. Methadone
 - D. Gastric lavage
 - E. Flumazenil



	<p><i>Coma with slow respiration and pinpoint pupils is typical of opioid poisoning, give naloxone</i></p> <p><i>The other points that point towards an opioid overdose in this question are:</i></p> <ul style="list-style-type: none">- <i>Friends who did not want to be interviewed by medical staff</i>- <i>Reduced consciousness</i>- <i>Low respiratory rate</i>- <i>Needle track marks on his arm</i>
50.	<p>A 13-year-old boy presents with recurrent episodes of facial and tongue swelling. He also complains of abdominal pain which occurs occasionally. His father has had similar episodes. What is the SINGLE most likely diagnosis?</p> <p>A. C1 esterase inhibitor deficiency</p> <p>B. Nephrotic syndrome</p> <p>C. Acute urticaria</p> <p>D. Anaphylaxis</p> <p>E. Sjogren's syndrome</p> <p><i>SAMPLE</i></p> <p><u><i>Hereditary angioedema (C1 esterase inhibitor deficiency)</i></u></p> <ul style="list-style-type: none">- <i>Rare genetic condition causing episodes of angioedema which includes life-threatening laryngeal oedema</i> <p><i>The stem would usually include</i></p> <ul style="list-style-type: none">- <i>A positive family history</i>- <i>Onset from childhood of episodes of angioedema affecting the larynx</i> <p><i>Sometimes impairing respiration and GI system, causing abdominal pain, and vomiting.</i></p> <p><i>Confirmed by:</i></p> <ul style="list-style-type: none">- <i>Low levels of C-esterase inhibitor and complement studies during the acute episode</i>



51.	<p>A 25-year-old male with a history of frequent binge drinking presents 4 hours after having had a takeaway meal following a night's heavy drinking. He complains of nausea and has vomited on several occasions. After the last vomiting episode, he vomited approximately a cupful of blood. On admission, he smells of alcohol, pulse of 100 beats/minute, blood pressure of 140/80 mmHg. He has some tenderness in the epigastrium. What is the SINGLE most likely diagnosis?</p> <p>A. Gastric carcinoma</p> <p>B. Mallory-weiss tear</p> <p>C. Oesophageal carcinoma</p> <p>D. Oesophageal varices</p> <p>E. Peptic ulcer</p> <p><i>This is a classic presentation of Mallory-Weiss syndrome (MWS). It is characterised by upper gastrointestinal bleeding (UGIB) from mucosal lacerations in the upper gastrointestinal tract, usually at the gastro-oesophageal junction or gastric cardia. Excessive alcohol ingestion is one of the main causes as prolonged or forceful bout of vomiting can cause a tear in the upper gastrointestinal tract.</i></p> <p><i>Resuscitation is a priority - maintain airway, provide high-flow oxygen, correct fluid losses by giving IV fluids. Intravenous blood can also be given in severe cases.</i></p> <p><i>Haemodynamically unstable patients like in this stem should have endoscopy immediately after resuscitation. It is the primary diagnostic investigation and can be used to stop the bleeding.</i></p> <p><i>Note, proton pump inhibitor (PPI) use is not recommended prior to diagnosis by endoscopy. A Cochrane review found PPI use at this stage was not associated with a reduction in re-bleeding, need for surgery or mortality</i></p>
52.	<p>A 14-year-old boy fell and hit his head in the playground school. He did not lose consciousness but has swelling and tenderness of the right cheek with a subconjunctival haemorrhage on his right eye. What is the SINGLE most appropriate initial investigation?</p> <p>A. Head CT</p> <p>B. Electroencephalogram</p> <p>C. Head MRI</p> <p>D. Skull X-ray</p> <p>E. Facial X-ray</p> <p><i>There is no feature of intracranial haemorrhage but the swelling and tenderness of right cheek are likely to indicate a facial injury. So, the most appropriate initial investigation is a facial x-ray.</i></p>



53.	<p>An 18-month-old boy pulled over a cup of hot tea that was on a high table. The hot liquid splashed over him and he now presents with a 6% partial thickness burn on his chest. What is SINGLE best treatment for him?</p> <p>A. IV crystalloids</p> <p>B. IV colloids</p> <p>C. No need for IV treatment</p> <p>D. IV dextrose bolus</p> <p>E. IV albumin infusion</p> <p><i>Any child with more than 10% of the total body surface area burned requires fluid replacement. Here there is only 6% partial thickness burns.</i></p>
54.	<p>Parents of a 3-year-old child have recently attended a funeral of their neighbour's son who died following a cardiorespiratory arrest. They want to know the algorithm for paediatric basic life support should their 3-year-old child has an arrest. What is the SINGLE most accurate advice would you give?</p> <p>A. Ratio of 5 compression to 1 breath</p> <p>B. Ratio of 5 compression to 2 breaths</p> <p>C. Ratio of 15 compressions to 2 breaths with nose pinched</p> <p>D. Ratio of 15 compressions to 2 breaths without nose pinched</p> <p>E. Ratio of 30 compressions to 2 breaths</p> <p>15 compressions to 2 breaths with nose pinched is the answer. For a child over 1 year old, pinch the soft part of his nose closed with the index finger and thumb of your hand on his forehead when giving rescue breaths.</p>



55. A 78-year-old woman presents to A&E with severe epigastric pain and vomiting. The pain is referred to her right shoulder. Generalised rigidity is noted when examining. She has a temperature of 37.2°C and a pulse of 102 beats/minute. Her medical history is significant for rheumatoid arthritis. What is the SINGLE most appropriate investigation?

- A. Ultrasound Abdomen
- B. Sigmoidoscopy
- C. Colonoscopy
- D. Erect chest X-ray**
- E. Upper GI endoscopy

The history of rheumatoid arthritis tells you that she is more than likely to be taking NSAIDS to manage with the pain. This is a risk factor for peptic ulcer which if perforates gives the signs and symptoms that she is describing...



	<p><i>Perforation of a peptic ulcer causes an acute abdomen with epigastric pain that may progress to generalised rigidity. Shoulder tip pain suggest is seen in perforation.</i></p> <p><i>A diagnosis is made by taking an erect abdominal/chest X-ray. Air under the diaphragm gives the diagnosis of a perforation.</i></p>
56.	<p>A 23-year-old girl presented with perioral paraesthesia and carpopedal spasm 20 minutes after a huge argument with her boyfriend. What is the SINGLE most appropriate next course of action?</p> <p>A. SSRI</p> <p>B. Diazepam</p> <p>C. Rebreathe into a paper bag</p> <p>D. Propranolol</p> <p>E. Alprazolam</p> <p><i>In panic attacks, perioral paresthesia, tingling and numbness in the hands can occur due to hyperventilation and CO₂ washout leading to low ionic calcium. The history of argument with her boyfriend could have elicit a panic attack. Rebreath into a paper bag will help to increase CO₂ levels and resolve symptoms.</i></p> <p><i>Panic attacks</i></p> <p><i>Period of intense fear characterized by a constellation of symptoms that develop rapidly, reach a peak of intensity in about 10min, and generally do not last longer than 20–30min (rarely over 1 hour). Attacks may be either spontaneous ('out of the blue') or situational (usually where attacks have occurred previously).</i></p> <p><i>Symptoms/signs:</i></p> <ul style="list-style-type: none">- Tremor- Tachycardia- Tachypnoea,- Sweating- Concerns of death from cardiac or respiratory problems <p><i>They may complain of dizziness, circumoral paraesthesia, carpopedal spasm, and occasionally sharp or stabbing chest pain. Initial examination would reveal tachypnoea with equal air entry over both lung fields, and no wheeze or evidence of airway obstruction. It is important to consider secondary causes (such as PE or DKA). Therefore, perform the following investigations:</i></p> <ul style="list-style-type: none">• SpO₂• ECG



	<ul style="list-style-type: none">• ABG if SpO₂ ↓, or if symptoms do not completely settle in a few minutes• BMG <p>If symptoms do not completely settle in a few minutes, obtain:</p> <ul style="list-style-type: none">• CXR• U&E, blood glucose, FBC <p>Treatment:</p> <p>Do not sedate a patient who is hyperventilating. Once serious diagnoses have been excluded, use this information to help reassure the patient with primary hyperventilation. Often this is all that is required, but it may be helpful to try simple breathing exercises (e.g. breathe in through nose)</p>
57.	<p>Which of the following formulas is used for calculating fluids for burn patients?</p> <p>Plab Lab Values</p> <p>A. 4 x weight(lbs) x area of burn (in ml of fluids)</p> <p>B. 4 x weight(kgs) x area of burn (in L of fluids)</p> <p>C. 4 x weight(kgs) x area of burn (in ml of fluids)</p> <p>D. 4 x weight(lbs) x area of burn (in L of fluids)</p> <p>E. 4.5 x weight(kgs) x area of burn (in dL of fluids)</p> <p><i>We use the <u>Parkland formula</u> to count the fluids required after burns. This is calculated from the time of the burn rather than the time of presentation. If the presentation is delayed, fluid may need to be given more rapidly.</i></p> <p>PARKLAND FORMULA</p> <p><i>Fluid Requirements = Body area burned (%) x Wt (kg) x 4mL. (use Hartmann's). Give 1/2 of total requirements in 1st 8 hours, then give 2nd half over next 16 hours.</i></p> <p><i>The area of body burn is calculated by adding the percentage of burns in each area using the rule of 9's:</i></p> <p><i>9% head and neck, 9% each upper limb, 18% each lower limb, 18% front of trunk, 18% back of trunk, 1% Palmar surface of the hand, including fingers, 1% Perineum</i></p>



58. A butcher comes to the emergency department after accidentally stabbing his groin with a knife. He tried to use a towel to stop the bleeding but has bled so much that the towel is now soaked with blood. His blood pressure is 80/50 mmHg and pulse is 130 beats/minute. What percentage of circulatory blood did he lose?

- A.
<15%
- B.
15-30%
- C.
30-40%**
- D.
40-50%
- E.
>50%

Stages of hypovolemic shock

For adults, the clinical staging relating to loss of blood volume can be classified as:

	Stage 1	Stage 2	Stage 3	Stage 4
Blood loss	10-15%	15-30%	30-40%	Over 40%
Blood pressure	Normal	Postural hypotension	Hypotension	Marked hypotension
Heart rate	Normal	Slight tachycardia (> 100 bpm)	Tachycardia (> 120 bpm)	Extreme tachycardia (>140 bpm)
Respiratory rate	Normal	Increased (> 20)	Tachypnoea (> 30)	Extreme tachypnoea
Mental status	Normal	Slight anxiety, restless	Altered, confused	Decreased consciousness, lethargy, or coma
Urine output	Normal	20-30 mL/hour	Less than 20 ml/hour	No urine output

It may be difficult to remember all these values and features of stages of hypovolemic shock. The best suggestions are to just memorise the heart rate and base your answer on that. The examination questions usually would give a history of blood loss and the patient's heart rate. With the heart rate alone, you should be able to tell which clinical stage he is in. You would also need to memorize the amount of blood loss in each stage e.g. 30-40% in stage 3.



59.	<p>A 4-year-old child playing with toys unattended suddenly develops breathlessness and stridor and is rushed into the hospital by his father. The child is drooling and unable to swallow. What is the SINGLE best investigation likely to lead to a diagnosis?</p> <p>A. Laryngoscopy</p> <p>B. Chest X-ray</p> <p>C. Peak flow meter</p> <p>D. Arterial blood gas</p> <p>E. Pulse oximeter</p> <p><i>Breathlessness and stridor in a child playing with toys is most likely due to aspiration of a foreign body (e.g. a part of the toy) for which indirect laryngoscopy and/or fibre-optic examination of the pharynx would provide a diagnosis.</i></p> <p><i>Remember, the ingestion of foreign bodies is most commonly a problem in young children aged 6 months to 5 years.</i></p>
60.	<p>A 24-year-old male presents to A&E with 40% partial thickness burns after having been in a house fire. His pulse rate is 115 bpm and respiratory rate is 29 breaths per minute. His systolic blood pressure is 80 mmHg. What is the SINGLE most appropriate management?</p> <p>A. IV fluids calculated from the time of hospital arrival</p> <p>B. IV fluids calculated from the time of burn</p> <p>C. Oral rehydration</p> <p>D. IV dextrose stat</p> <p>E. IV morphine</p> <p><i>These are the steps that you need to know for the treatment of burns for PLAB 1. Note the order.</i></p> <ul style="list-style-type: none">- <i>Large-calibre intravenous lines must be established immediately in a peripheral vein. Any adult with burns affecting more than 15% of the total body surface area burned or a child with more than 10% of the total body surface area burned requires fluid replacement calculated from the time of the burn.</i>- <i>Ensure adequate analgesia: strong opiates should be used.</i>- <i>Prevent hypothermia.</i>



	<p><i>We use the Parkland formula to count the fluids required after burns. This is calculated from the time of the burn rather than the time of presentation. If the presentation is delayed, fluid may need to be given more rapidly.</i></p>
61.	<p>An 18-year-old female was brought into the ED after ingestion of 28 paracetamol tablets after breaking up with her boyfriend. She came in confused and unwell. She was admitted in the medical ward and N-Acetylcysteine was given. 24 hours later, her laboratory results show a normal FBC, an arterial pH of 7.1, Prothrombin time of 17 seconds and creatinine of 255μmol/L. She is still confused and lethargic. What is the SINGLE most appropriate management?</p> <p>Normal Lab values: Creatinine 70–150μmol/L pH 7.35–7.45 Prothrombin time (PT): 11-14 sec</p> <p>A. Observe for another 24 hours B. Admit to psychiatric ward C. Intravenous fluids D. Administer charcoal E. Liver transplantation</p> <p><i>SAMPLE</i></p> <p><i>Her arterial pH is 7.1 which is an indication for liver transplantation.</i></p> <p><i>King's College Hospital criteria for liver transplantation (paracetamol liver failure)</i> <i>Arterial pH < 7.3, 24 hours after ingestion or all of the following:</i></p> <ul style="list-style-type: none">- <i>prothrombin time > 100 seconds</i>- <i>creatinine > 300 μmol/l</i>- <i>grade III or IV encephalopathy</i> <p><i>Generally, if one takes more than 24 tablets (12g), we admit.</i></p> <p><i>Paracetamol poisoning is always dealt in the medical ward (not psychiatry ward). Only once treated and stable can they move to a psychiatric ward for evaluation.</i></p> <p><i>Paracetamol (acetaminophen) poisoning</i></p> <p><i>Initial features → Nausea, vomiting, pallor</i> <i>After 24 hours → Hepatic enzymes rise</i> <i>After 48 hours → Jaundice, an enlarged, tender liver</i></p> <p><i>Hypoglycaemia, hypotension, encephalopathy, coagulopathy, coma may also occur.</i></p>



	<p><u>When to discharge home?</u> <i>If ingestion of paracetamol is < 150mg/kg in a child/adult with no hepatic risk factors</i></p> <p><u>When to admit?</u></p> <ul style="list-style-type: none">- Admit those presenting within 8h of ingesting >150mg/kg (or an unknown amount)- (For the exam, it can be quite time consuming to multiply 150mg with the weight of the patient. So, we would advise you to use the number 24 as a benchmark whereby if the patient consumes more than 24 tablets (12 g) of paracetamol, then you admit him/her) <p><u>When to do a serum paracetamol concentration?</u></p> <ul style="list-style-type: none">- At ≥4h post ingestion if consumed >150mg/kg (or an unknown amount) <p><u>When to give activated charcoal?</u></p> <ul style="list-style-type: none">- If presenting < 1h, and >150mg/kg of tablets ingested <p><u>When to give N-acetylcysteine?</u></p> <ul style="list-style-type: none">- If there is a staggered overdose (Note: a staggered overdose is if all the tablets were not taken within 1 hour); or- If there is doubt over the time of paracetamol ingestion, regardless of the plasma paracetamol concentration; or- If plasma paracetamol concentration (taken 4 hours' post ingestion) is above the appropriate line- If patients present late (>8h) and ingested dose is >150mg/kg, (or dose is unknown)
62.	<p>A 34-year-old man was brought to the ED after a road traffic accident. His blood pressure is 50/0 mmHg and respiratory rate is 34 breaths/minute. His chest wall is not moving symmetrically. What is the SINGLE most appropriate initial action?</p> <p>A. IV fluid infusion</p> <p>B. Intubation and ventilation</p> <p>C. Analgesia</p> <p>D. Transfer to ITU</p> <p>E. Chest X-ray</p> <p><i>In this question, the examiners want you to know the basics of life-threatening emergencies. ABC - airway, breathing, circulation should always be addressed first.</i></p> <p><i>This patient is in shock. In reality, high flow oxygen, securing venous access and analgesia would all be done simultaneously. But for the purpose of this exam, we should know the steps</i></p>



	<p><i>according to NHS guidelines and British references. Thus, securing airways and giving oxygen would come before anything else.</i></p> <p><i>Management of Shock</i></p> <ul style="list-style-type: none">- <i>Investigation and treatment should occur simultaneously.</i>- <i>Address the priorities → ABC</i>- <i>High flow O2 by mask</i>- <i>Secure adequate venous access and take necessary bloods for investigation</i>- <i>Resuscitation is usually started with crystalloid, such as normal saline or Hartmann's solution → 20 mL/kg as bolus</i>
63.	<p>A 24-year-old man comes into the emergency department with partial thickness burns all over his body from a house fire. He has persistent cough and stridor. There are deep neck burns, carbonaceous sputum and soot in the mouth and oedema of the oropharynx. What is the SINGLE most appropriate management?</p> <p>A. Topical antibiotics</p> <p>B. Fluid resuscitation</p> <p>C. Immediate burn care and cooling</p> <p>D. Intravenous analgesia</p> <p>E. Tracheal intubation</p> <p><i>After major burns, if there is any evidence of impending airway obstruction (stridor, oropharyngeal swelling, call for senior ED help and a senior anaesthetist immediately. Urgent general anaesthesia and tracheal intubation may be life-saving.</i></p> <p><i>Airway, breathing, and circulation → always in this order.</i></p> <p><i>Smoke inhalation injury is a common cause of death in burn victims. Initial assessment may reveal no evidence of injury, but laryngeal oedema can develop suddenly and unexpectedly thus early intubation is warranted if there is evidence of inhalation injury.</i></p> <p><i>Signs and symptoms of smoke inhalation injury</i></p> <ul style="list-style-type: none">- <i>Persistent cough</i>- <i>Stridor</i>- <i>Wheezing</i>- <i>Black sputum suggests excessive exposure to soot</i>- <i>Use of accessory muscles of respiration</i>- <i>Blistering or oedema of the oropharynx</i>- <i>Hypoxia or hypercapnia</i>



64.	<p>A 25-year-old woman has been feeling anxious and nervous for the last few months. She also complains of palpitations and tremors. Her symptoms develop rapidly and last for a few minutes. She mentions that taking alcohol initially helped her relieve her symptoms but now this effect is wearing off and she has palpitations and tremors even after drinking alcohol. What is the SINGLE most likely diagnosis?</p> <p>A. Panic attacks</p> <p>B. Depression</p> <p>C. Obsessive-compulsive disorder (OCD)</p> <p>D. Alcohol addiction</p> <p>E. Generalised Anxiety Disorder (GAD)</p> <p><i>There is a fine line between Generalised Anxiety Disorder (GAD) and Panic attacks. They both can present similarly. However, in this question, her symptoms develop rapidly and only last for a few minutes. This is the key phrase that you should look out for that tells you this is Panic attacks rather than GAD.</i></p>
65.	<p>A butcher comes into A&E after accidentally stabbing his groin with a knife. He tried to use a towel to stop the bleeding but has bled so much that the towel is now soaked with blood. His Blood pressure is 75/40 mmHg and pulse is 120 beats/minute. What is the SINGLE most appropriate initial management?</p> <p>A. Blood transfusion</p> <p>B. IV fluids</p> <p>C. Fresh frozen plasma</p> <p>D. Refer to surgeon</p> <p>E. Oral rehydration</p> <p><i>In reality, we would obviously start IV fluids as soon as possible and get a crossmatch for a blood transfusion. Thus, many argue that the option A. Blood transfusion would be correct. Although debatable, the question here does ask for the most appropriate initial management. IV fluids would be more appropriate given that he is hypotensive and IV normal saline is readily available in the A&E departments. Packed RBC take time as staff would need to call the blood transfusion lab and order blood.</i></p>



66. A 49-year-old woman presents to the Emergency Department with a productive cough of green sputum. She feels unwell, feverish and lethargic. On examination, bronchial breathing is heard at her right base. She has a respiratory rate of 27 breaths/minute, oxygen saturation of 90% on room air, pulse rate of 130 beats/minute and a blood pressure of 85/40 mmHg. What is the SINGLE next most appropriate action?

A.

Intravenous fluids

B.

Oral antibiotics

C.

Chest X-ray

D.

Intramuscular adrenaline

E.

Sputum culture

Her observations are extremely alarming and would raise red flags. She is clearly septic from a pneumonia. Sepsis six would need to be performed urgently within the hour. Among the sepsis six is to give intravenous fluids.

Oral antibiotics would be inappropriate. We need a broad-spectrum antibiotic in the blood stream as soon as possible thus it needs to be given intravenously.

Chest X-ray would need to be performed but can be done after performing the sepsis six and stabilising the patient.

Sepsis

A life-threatening organ dysfunction caused by a dysregulated host response to infection

There are a few questions you need to ask when dealing with sepsis:

- *Is the patient acutely unwell or is there any clinical concern?*
- *Is the total NEWS score 5 or more?*
- *Is there a single NEWS score indicator of 3?*

Note: NEWS score stands for National Early Warning Score. It is a score introduced by the Royal College of Physicians in 2012 and it is used across the NHS to assess patient's vitals and observations.

If any of the above questions were yes, then ask yourself, could this be an infection?

*If yes, look for any **RED FLAGS***

- *Evaluation for 'Red Flag' sepsis*
- *Systolic blood pressure < 90 mmHg (or >40 mm Hg fall from baseline)*
- *Heart rate >130 beats/minute*



	<ul style="list-style-type: none">➤ Oxygen saturations < 91% (< 88% in COPD)➤ Respiratory rate >25 breaths/minute➤ Responds only to voice or pain/unresponsive➤ Lactate >2.0 mmol➤ Urine output < 0.5 ml/kg/hr for ≥ 2 hours <p>If 1 or more RED FLAGS present → Complete the SEPSIS SIX within 60 minutes</p> <p>Sepsis Six → Take 3, Give 3</p> <ul style="list-style-type: none">➤ Take 3<ul style="list-style-type: none">- Blood cultures- FBC, urea and electrolytes, clotting, lactate- Start monitoring urine output➤ Give 3<ul style="list-style-type: none">- High flow oxygen- Intravenous fluid challenge- Intravenous antibiotics
67.	<p>A 36-year-old man rescued from a building on fire presents headache, vertigo, nausea, confusion and vomiting. He complains of feeling weak. He is without any evidence of burns or external injury. What is the SINGLE most appropriate management?</p> <p>A. Tight-fitting mask with 100% oxygen</p> <p>B. 24% oxygen by face mask</p> <p>C. Hyperbaric oxygen in a hyperbaric chamber</p> <p>D. Intubate and provide IPPV on 100% oxygen</p> <p>E. Refer to specialist unit</p> <p><i>As this patient is conscious, we just need a tight-fitting mask with 100% oxygen for an unconscious patient intubate and provide IPPV on 100% oxygen</i></p> <p><i>The decision for hyperbaric oxygen therapy (HBOT) is a difficult one and there are many debates about the added value provided by hyperbaric oxygen. As this patient is conscious, the decision is easy here as there are no indications for HBOT.</i></p> <p><i>In the current NICE guidelines, treatment with hyperbaric oxygen is not currently recommended, because there is insufficient evidence that hyperbaric oxygen therapy improves long-term outcomes of people with severe carbon monoxide poisoning, compared with standard oxygen therapy. Thus, based on NICE guidelines, for any question in PLAB with CO2 poisoning, hyperbaric oxygen therapy will NOT be the answer.</i></p>



Carbon monoxide poisoning

Carbon monoxide (CO) is a tasteless and odourless gas produced by incomplete combustion. Poisoning may occur from car exhausts, fires and faulty gas heaters. CO is also produced by metabolism of methylene chloride (used in paint strippers and as an industrial solvent).

CO decreases the oxygen-carrying capacity of the blood by binding haemoglobin (Hb) to form carboxyhaemoglobin (COHb). This impairs O₂ delivery from blood to the tissues thus causing severe tissue hypoxia.

Clinical features:

- Early features are:
- Headache
- Malaise
- Nausea and vomiting

In severe toxicity:

- 'Pink' skin and mucosae
- Hyperpyrexia
- Arrhythmias
- Coma with hyperventilation

Management

Note: The elimination half-life of CO is about 4 hours on breathing air, 1 hour on 100% O₂, and 23 minutes on O₂ at 3 atmospheres pressure.

- Clear the airway
- Maintain ventilation with high concentration of O₂
- For a conscious patient use a tight-fitting mask with an O₂ reservoir, but if unconscious intubates and provide IPPV on 100% O₂

Indications for hyperbaric oxygen therapy (HBOT):

There is debate about the added value provided by hyperbaric oxygen. Hyperbaric O₂ therapy is logical, but of no proven benefit for CO poisoning. Transfer to a hyperbaric chamber and pressurization may take hours and so hyperbaric treatment may be no more effective than ventilation on 100 % normobaric O₂. Caring for a critically ill patient in a small pressure chamber may be impracticable.

A COHb concentration of >20% should be an indication to CONSIDER hyperbaric oxygen and the decision should be taken on the basis of the indicators listed below:

- Loss of consciousness at any stage
- Neurological signs other than headache
- Myocardial ischaemia/arrhythmia diagnosed by ECG
- The patient is pregnant.

If there are any of the indications stated above, discuss with a Poisons Information Service and consider hyperbaric treatment. The Poisons Information Service can advise on the location of hyperbaric chambers. But note currently, the treatment with hyperbaric oxygen is not currently recommended by NICE guidelines, because there is insufficient evidence that hyperbaric oxygen



	<i>therapy improves long-term outcomes of people with severe carbon monoxide poisoning, compared with standard oxygen therapy.</i>
68.	<p>A 20-year-old man presents to A&E after having severe injuries from a road traffic accident. On presentation, he is breathless and has severe chest pain. His systolic blood pressure is 70 bpm and his pulse rate is 130/min What is the SINGLE most appropriate initial action?</p> <p>A. Antibiotics B. Analgesia C. High flow oxygen D. Secure venous access E. Refer to surgeon</p> <p><i>Another very debatable question.</i></p> <p><i>In this question, the examiners want you to know the basics of life-threatening emergencies. ABC - airway, breathing, circulation should always be addressed first.</i></p> <p><i>This patient is in shock. In reality, high flow oxygen, securing venous access and analgesia would all be done simultaneously. But for the purpose of this exam, we should know the steps according to NHS guidelines and British references. Thus, securing airways and giving oxygen would come before anything else.</i></p> <p><i>Management of Shock</i></p> <p><i>Investigation and treatment should occur simultaneously.</i></p> <ul style="list-style-type: none">- Get senior help immediately.- Address the priorities → ABC.- Give high flow O2 by mask- Secure adequate venous access and take necessary bloods investigation- Monitor vital signs, including pulse, BP, SpO2, respiratory rate- Insert a urinary catheter and monitor urine output hourly.- For shock associated with effective circulating blood volume, give IV crystalloid (0.9 % saline) 20mL/kg as bolus.



69. A 16-year-old female teenager was brought to the emergency department after being stabbed on the upper right side of his back 2 hours ago. An erect Chest X-ray revealed homogenous opacity on the lower right lung. The trachea is centrally placed. She has a blood pressure of 80/60 mmHg, a pulse of 122 beats/minute, and a respiratory rate of 34 breaths/minute. What is the SINGLE most likely diagnosis?

- A.
Pneumothorax
- B.
Haemothorax**
- C.
Pneumonia
- D.
Tension pneumothorax
- E.
Empyema

Haemothorax

Blood accumulates in the pleural cavity

Clinical features

Similar to that seen in traumatic pneumothorax, except the following

- *Dullness to percussion over the affected lung*
- *Signs and symptoms of hypovolaemia if massive haemothorax*

Investigations

- *Chest X-ray shows an increased shadowing on a supine X-ray, with no visible fluid level*

Treatment

- *Oxygen*
- *Insert 2 large venous cannulae and send blood for cross matching*
- *Evacuation of blood may be necessary to prevent development of empyema; thus, chest tube is needed and is often placed low. Usually the lung will expand and the bleeding will stop after a chest tube is inserted.*
- *Surgery to stop the bleeding is seldom required. The lung is the usual the source of bleeding. Since it is a low-pressure system, the bleeding usually would stop by itself.*



70. A 32-year-old man is brought to A&E by his wife with symptoms of chest pain, abdominal pain, palpitations, nausea and altered mental status. His wife says that she found a bottle of empty medication on the toilet floor and it is likely that he consumed the whole bottle. He has a respiratory rate of 34 breaths/minute. His arterial blood gas shows the following:

pH 7.21

pCO₂ 3.0 kPa

P0₂ 13

Bicarbonate 18 mmol/L

What is the SINGLE most likely medication that he could have taken?

A.

Paracetamol

B.

Aspirin

C.

Diclofenac

D.

Enalapril

E.

Gentamicin

The clinical picture here represents metabolic acidosis. This is likely from aspirin poisoning. With aspirin overdose, they initially hyperventilate leading to respiratory alkalosis initially. The initial phase could last up to 12 hours. Following that, progressive metabolic acidosis occurs. This usually occurs around the 24-hour mark after ingestion for adults.

Paracetamol overdose may also cause metabolic acidosis in the early and late course of poisoning and thus paracetamol as an answer is not completely wrong. However, aspirin overdose is a more recognised cause of metabolic acidosis compared to paracetamol.

Overdose of Enalapril (ACE inhibitor), Diclofenac (NSAIDs) or Gentamicin (aminoglycoside) is likely to cause metabolic alkalosis and not acidosis.

If suspecting metabolic acidosis do a blood gas. A metabolic acidosis picture with an increased anion gap can be due to several drugs. Common ones are listed here:

- Metformin
- Alcohol
- Isoniazid
- Iron
- Aspirin
- Digoxin



71.	<p>A 33-year-old man was involved in a road traffic accident. He has acute abdominal pain. On abdominal examination, there is bruising along the site of the portion of the seat belt. His abdomen is very tender. A computerised tomography scan of his abdomen shows a subscapular splenic haematoma. He has a pulse rate of 90 beats/minute, respiratory rate of 24 breaths/minute, and a blood pressure of 120/80 mmHg. What is the SINGLE most appropriate action?</p> <p>A. Immediate laparotomy</p> <p>B. Refer to surgical team for observation</p> <p>C. Outpatient department referral</p> <p>D. Routine referral for ultrasound scan</p> <p>E. Laparoscopy</p> <p><i>A subscapular splenic haematoma as diagnosed by the preoperative CT scan is neither a predictor for delayed splenic rupture, nor by itself an indication for operative management of the injured spleen in a haemodynamically stable patient.</i></p> <p><i>Observation would be the most appropriate action. Focused abdominal sonography (ultrasound) for trauma (FAST) is regarded as the investigation of choice for early diagnostic investigations in patients with suspected blunt abdominal trauma and it is regarded as the investigation of choice for unstable patients. Free fluid in a haemodynamically unstable patient indicates the need for emergency laparotomy. However, this patient is stable and does not warrant an immediate laparotomy. The FAST scans are typically used to enhance the speed of trauma assessment, reduce the number of CT scans and cut cost. However, this patient has already had a CT scan, thus an ultrasound scan would not give any added information in regards to an acute abdomen.</i></p> <p><i>Solid organ injury in haemodynamically stable patients can often be managed without surgery but would require observation for a while before discharge.</i></p>
72.	<p>A 10-year-old comes is brought in by ambulance after having been rescued from a house fire. There is soot in his mouth and he has difficulty breathing. What is the SINGLE most appropriate management?</p> <p>A. Refer to burn unit</p> <p>B. Tracheal intubation</p> <p>C. Cricothyroidotomy</p> <p>D. Intermittent positive-pressure ventilation</p> <p>E. Administer 100% oxygen by face mask</p> <p><i>After major burns, if there is any evidence of impending airway obstruction (stridor, oropharyngeal swelling, a tracheal intubation would need to be performed as it is live-saving.</i></p>



	<p><i>Airway, breathing, and circulation → always in this order.</i></p> <p><i>Smoke inhalation injury is a common cause of death in burn victims. Initial assessment may reveal no evidence of injury, but laryngeal oedema can develop suddenly and unexpectedly thus early intubation is warranted if there is evidence of inhalation injury.</i></p> <p><i>Signs and symptoms of smoke inhalation injury:</i></p> <ul style="list-style-type: none">- <i>Persistent cough</i>- <i>Stridor</i>- <i>Wheezing</i>- <i>Black sputum suggests excessive exposure to soot</i>- <i>Use of accessory muscles of respiration</i>- <i>Blistering or oedema of the oropharynx</i>- <i>Hypoxia or hypercapnia</i>
73.	<p>A 44-year-old man with a history of alcohol dependency presents with confusion. He responds poorly to questions and is seen to be irritable. He is unsteady and has unco-ordinated walking. His blood glucose is 3.5 mmol/L. He has no other relevant medical history. What is the SINGLE most appropriate immediate action?</p> <p>A. Intravenous thiamine</p> <p>B. Bolus of 50% glucose</p> <p>C. Intravenous 5% dextrose</p> <p>D. Normal saline</p> <p>E. Computed tomography of head</p> <p><i>It is well known that chronic alcoholics are at high risk for being deficient in vitamin B1 (thiamine), which is known to put the patient at an increased risk for Wernicke-Korsakoff Syndrome and cerebellar degeneration. Thiamine should be given as priority in this stem before administering glucose. Firstly, it is unlikely that his deterioration of cognitive function is the result of hypoglycaemia as this is usually seen at glucose levels less than 3.0mmol/L.</i></p> <p><i>Secondly, if you were to administer glucose first, you will be feeding the cells more glucose without giving the needed thiamine to allow for the forward movement of cellular reactions for complete ATP generation. This would lead to an increase in amount of lactic acid produced and consequently leading to acidosis. Remember, in the context of Wernicke-Korsakoff syndrome, thiamine should be given first so that when the glucose is given, glucose will be utilized to form ATP and prevent the acceleration of cell death in structures of the brain.</i></p>



SAMPLE



SAMPLE



SAMPLE



SAMPLE



ENDOCRINOLOGY

SAMPLE



1. A 30 year old man has frequent episodic headaches with palpitations. He suffers from anxiety and has the occasional tremor on both his hands. His blood pressure was found to be 160/110 mmHg. What is the SINGLE most likely diagnosis?

- A. Hyperthyroidism
- B. Panic attacks
- C. Pheochromocytoma**
- D. Cushing's disease
- E. Generalized anxiety disorder

Pheochromocytoma

Pheochromocytoma is a rare catecholamine secreting tumour.

Rule of 10

- *bilateral in 10%*
- *malignant in 10%*
- *extra-adrenal in 10% (most common site = organ of Zuckerkandl, adjacent to the bifurcation of the aorta)*
- *10% are familial and may be associated with MEN type II, neurofibromatosis and von Hippel-Lindau syndrome*
- *10% not associated with hypertension*

Features are typically episodic

- *Hypertension (around 90% of cases and may be sustained)*
- *Headaches*
- *Palpitations*
- *Profuse sweating*
- *Anxiety*
- *Tremor*

Mnemonic

PHaeochromocytoma

P → Palpitations

H → Headaches

PH → PHlushings (flushing)

Tests

- *24 hr urinary collection of metanephrines (sensitivity 97%), Note: this has replaced a 24 hr urinary collection of catecholamines (sensitivity 86%)*

Management

Surgical resection of the tumour is the treatment of choice and usually results in cure of the hypertension. However, the patient must first be stabilized with medical management:

- *alpha-blocker (e.g. phenoxybenzamine)*
- *beta-blocker (e.g. propranolol) Note: Alpha blocker must be given before a beta blocker*



	<p><i>The reason behind medical management with alpha-blockers and beta-blockers is it is required to control blood pressure to prevent intraoperative hypertensive crises.</i></p> <p><i>Alpha blockade with phenoxybenzamine is started at least 7 to 10 days before operation to allow for expansion of blood volume. Only once this is achieved is beta blockade considered. If beta blockade is started too soon, unopposed alpha stimulation can precipitate a hypertensive crisis.</i></p>
2.	<p>A 46 year old woman who lives in UK complains of weight gain, constipation and sensitivity to cold. Her pulse is regular at 50 beats/minute. What is the SINGLE most likely underlying mechanism for her condition?</p> <p>A. Autoimmune B. Degenerative C. Congenital D. Infective E. Nutritional</p> <p><i>She is suffering from hypothyroidism.</i></p> <p><i>Note that Iodine deficiency (nutritional causes) is the most common cause of hypothyroidism worldwide but in developed countries like UK, autoimmune hypothyroidism is more prevalent.</i></p> <p>Hypothyroidism</p> <p>Primary hypothyroidism</p> <ul style="list-style-type: none">• Autoimmune hypothyroidism - Hashimoto's thyroiditis (associated with a goitre) and atrophic thyroiditis.• Iatrogenic - radioiodine treatment, surgery, radiotherapy to the neck• Iodine deficiency - the most common cause worldwide and goitre is present (uncommon in UK)• Drugs - amiodarone, contrast media, iodides, lithium and antithyroid medication.• Congenital defects - e.g. absence of thyroid gland <p>Secondary hypothyroidism</p> <ul style="list-style-type: none">• Isolated TSH deficiency• Hypopituitarism - neoplasm, infiltrative, infection and radiotherapy• Hypothalamic disorders - neoplasms and trauma <p>Symptoms</p> <ul style="list-style-type: none">• Tiredness, lethargy, intolerance to cold• Dry skin and hair loss• Slowing of intellectual activity - eg, poor memory and difficulty concentrating.• Constipation• Decreased appetite with weight gain.• Menorrhagia and later oligomenorrhoea or amenorrhoea



	<p>Signs</p> <ul style="list-style-type: none">• Dry coarse skin, hair loss and cold peripheries• Puffy face, hands and feet (myxoedema)• Bradycardia <p><i>In autoimmune hypothyroidism, patients may have features of other autoimmune diseases, such as, vitiligo, pernicious anaemia, Addison's disease and diabetes mellitus.</i></p>
3.	<p>A 39 year old man has 7 kg unintentional weight loss in the last two months despite having good appetite. He also complains of palpitations, sweating and diarrhoea. He has a lump in front of his neck which moves on swallowing. What is the SINGLE most appropriate diagnosis?</p> <p>A. Lymphoma B. Tuberculous lymphadenitis C. Thyroid Cancer D. Goiter E. Thyroid cyst</p> <p><i>He has signs and symptoms of hyperthyroidism. The mass is likely to be a goitre rather than thyroid cancer as thyroid cancers usually do not manifest with symptoms of hyperthyroidism.</i></p> <p><u>Manifestations of hyperthyroidism (all forms)</u></p> <p><u>Symptoms</u></p> <ul style="list-style-type: none">• Hyperactivity, irritability, altered mood, insomnia• Heat intolerance, sweating• Palpitations• Fatigue, weakness• Dyspnoea• Weight loss with increased appetite• Pruritus• Increase stool frequency• Thirst and polyuria• Oligomenorrhoea or amenorrhoea, loss of libido, erectile dysfunction <p><u>Signs</u></p> <ul style="list-style-type: none">• Sinus tachycardia, atrial fibrillation• Fine tremor, hyperreflexia• Warm, moist skin• Palmar erythema• Hair loss• Muscle weakness and wasting



4.

A 56 year old man has noticed a strange tingling around his mouth for the past few weeks. It was very subtle at first but has become increasingly apparent. On examination, twitching facial muscles were noticed. His past medical history includes type 1 diabetes. What is the SINGLE most likely biochemical finding?

- A. Hyponatraemia
- B. Hypocalcaemia**
- C. Hypercalcaemia
- D. Hypokalaemia
- E. Hyperkalaemia

This question is rather straightforward. The tingling around his mouth is perioral paraesthesia, which, in combination the findings of twitching facial muscles leads us to think that this is hypocalcaemia. The history of diabetes was given as another hint for the diagnosis. He most likely has a degree of chronic renal impairment due to diabetes which supports the findings of hypocalcaemia.

Hypocalcaemia

Common causes

- vitamin D deficiency (osteomalacia)
- chronic renal failure
- hypoparathyroidism (e.g. post thyroid/parathyroid surgery)
- Hyperphosphatemia
- Hypomagnesemia

The clinical history combined with parathyroid hormone levels will reveal the cause of hypocalcaemia in the majority of cases

Clinical Findings

Hypocalcaemia results in increased neural hyperexcitability such as seizures, tetany, circumoral numbness, and tingling of the extremities. Arrhythmias may develop because of a prolonged QT.

A mnemonic to help is with clinical signs and symptoms is: "SPASMODIC"

S → Spasm (carpopedal spasms = Trousseau's sign)

P → Perioral paraesthesiae

A → Anxious, irritable, irrational

S → Seizures

M → Muscle tone increased in smooth muscles

O → Orientation impaired (time, place and person) and confusion

D → Dermatitis

I → Impetigo herpetiformis (rare and serious)

C → Chvostek's sign, Cardiomyopathy (long QT interval on ECG)



	<p><i>The examination findings that illustrate this deficit are:</i></p> <ol style="list-style-type: none">1. <i>Trousseau's sign in which the wrist flexes and the fingers are drawn together in response to occlusion of the brachial artery.</i>2. <i>Chvostek's sign in which facial muscles twitch in response to tapping over the parotid, revealing neuromuscular excitability due to the low calcium.</i> <p><u>Management</u></p> <ul style="list-style-type: none">• <i>acute management of severe hypocalcaemia is with intravenous replacement. The preferred method is with intravenous calcium gluconate,</i>• <i>intravenous calcium chloride is more likely to cause local irritation</i>• <i>further management depends on the underlying cause</i>
5.	<p>A 23 year old woman presents to the female health clinic with secondary amenorrhoea for a duration of 10 months. Her BMI is 30. She has dark pigmentation on her neck and severe acne on her face. She complains of feeling weak and lethargic. Blood test reveals a serum potassium level of 2.5mmol/L. What is the SINGLE most likely diagnosis?</p> <p>A. Acquired hypothyroidism B. Primary hyperaldosteronism C. Cushing's syndrome D. Polycystic ovarian syndrome E. Addison's disease</p> <p><i>This is a seemingly difficult question because there are lots of conditions that fit this patient's signs and symptoms. However, in a question like this where you have doubts, look at the clincher in the stem that offers a definitive result. In this question, it is the potassium level.</i></p> <p><i>There are many causes of a low potassium level but the two that we are considering in this question are Cushing's syndrome and hyperaldosteronism.</i></p> <p><i>Patients with hyperaldosteronism often present with the complaint of polyuria and polydipsia in addition to headaches and lethargy. Upon further investigation, hypertension and hypokalaemia will be discovered. Hyperaldosteronism does not present with menstrual abnormalities or an increase in BMI therefore it is not the answer.</i></p> <p>Cushing's syndrome:</p> <p><i>Please note that Cushing's syndrome merely implies exposure to high levels of glucocorticoids. When an endogenous source of glucocorticoids are found after investigation, it is termed Cushing's Disease.</i></p> <p><i>Cushing's syndrome presents with a myriad of signs and symptoms. The most important thing for PLAB 1 is knowing how to evaluate Cushing's syndrome and determine the source of the glucocorticoid exposure.</i></p>



6.	<p>A 67 year old male is urinating more than usual, particularly at night. He recently is feeling tired most of the time. He has a BMI of 33. His urine dipstick tested negative for nitrates but was positive for glucose. What is the SINGLE most appropriate next investigation?</p> <p>A. Prostate-specific antigen B. Urea, creatinine and electrolytes C. MSU culture and sensitivity D. Acid fast urine test E. Blood sugar</p> <p><i>Given his age, high BMI, positive glucose on urine dipstick, along with the symptoms of polyuria and nocturia, the preliminary diagnosis here is diabetes mellitus type 2.</i></p> <p><u>Diabetes mellitus (type 2)</u></p> <p><i>The diagnosis of type 2 diabetes mellitus can be made by either a plasma glucose or a HbA1c sample. Diagnostic criteria vary according to whether the patient is symptomatic (polyuria, polydipsia etc) or not.</i></p>
7.	<p>A 40 year old male with pre-existing glomerulonephritis deteriorates and presents with oliguria.</p> <p>Lab results show the following: Serum K⁺ = 7.8mmol/L Urea = 13 mmol/L Creatinine = 342 mmol/L GFR = 19mL/h.</p> <p>What is the SINGLE most appropriate initial management?</p> <p>A. Calcium supplement B. Calcium resonate enema 30g C. Urgent haemodialysis D. Loop diuretics E. IV Calcium gluconate</p> <p><i>Calcium gluconate is the most appropriate initial management as it is used to prevent cardiac arrhythmia. It prevents cardiac arrest or life threatening cardiac arrhythmia to buy time till definitive measures are taken.</i></p> <p>Hyperkalaemia</p> <p><i>Untreated hyperkalaemia may cause life-threatening arrhythmias. ECG changes seen in hyperkalaemia include tall-tented T waves, small P waves, widened QRS leading to a sinusoidal pattern and asystole</i></p> <p>Causes of hyperkalaemia that are important for PLAB:</p>



	<ul style="list-style-type: none">• Acute renal failure• Potassium sparing diuretics, ACE inhibitors, angiotensin 2 receptor blockers, spironolactone• Metabolic acidosis• Addison's <p>Management</p> <ol style="list-style-type: none">1. Stop drugs that cause hyperkalaemia2. If ECG changes of hyperkalaemia are seen → IV calcium gluconate <ul style="list-style-type: none">• IV calcium gluconate is used to stabilise the cardiac membrane• Note that ECG changes are more accurate in identifying cardiac toxicity than plasma K⁺ levels3. If severely hyperkalemic and short-term shift in K⁺ from extracellular to intracellular fluid compartment is needed → Insulin and dextrose infusion <p>Other methods to remove K⁺ from the body</p> <ul style="list-style-type: none">• Calcium resonium → lowers potassium very slowly by binding it in the gut• Loop diuretics• Dialysis
8.	<p>A 24 year old schizophrenic has been under antipsychotic treatment for the last year. He has been experiencing headaches and erectile dysfunction. Which medication is most likely to have caused this?</p> <p>A. Fluoxetine B. Citalopram C. Clozapine D. Haloperidol E. Risperidone</p> <p><i>Haloperidol can raise prolactin levels causing hyperprolactinaemia which can cause erectile dysfunction.</i></p> <p><u>Hyperprolactinaemia</u> <i>Excess prolactin secretion is a common clinical problem in women and causes the syndrome of galactorrhoea-amenorrhoea. The amenorrhoea appears to be caused by inhibition of hypothalamic release of luteinizing hormone releasing hormone (LHRH) with a decrease in luteinizing hormone (LH) and follicle-stimulating hormone (FSH) secretion.</i></p> <p><i>Prolactin inhibits the LH surge that causes ovulation.</i></p> <p><i>Although hyperprolactinaemia is also seen in men, gynecomastia and especially galactorrhoea are very rare.</i></p>



	<p><u>Etiology</u></p> <ul style="list-style-type: none">• hyperprolactinaemia can be seen in natural physiologic states such as pregnancy, nipple stimulation/suckling, stress• Pituitary tumours such as prolactinomas• Hypothalamic disease → mass compressing stalk (craniopharyngioma, meningioma)• Hyperprolactinaemia can also occur with decreased inhibitory action of dopamine. (e.g. Antipsychotic agents)• Hypothyroidism → TRH increases prolactin <p><u>Clinical of Hyperprolactinaemia</u></p> <ul style="list-style-type: none">• Galactorrhoea → usually in women. Men rarely get galactorrhoea• Menstrual abnormalities → amenorrhoea or oligomenorrhoea,• Disturbed gonadal function in men → erectile dysfunction, decreased libido, gynecomastia in men, reduced fertility <p><u>Clinical features of Mass effects (macroadenomas only)</u></p> <ul style="list-style-type: none">• Headaches and visual field defects (uni- or bitemporal field defects)• Hypopituitarism <p><u>Diagnosis</u></p> <ul style="list-style-type: none">• Always exclude states such as pregnancy, lactation, hypothyroidism and medications before starting the work-up of hyperprolactinaemia• Serum prolactin <2,000mU/L is suggestive of a tumour → either a microprolactinoma or a non-functioning macroadenoma compressing the pituitary stalk• Serum prolactin >4,000mU/L is diagnostic of a macroprolactinoma.• Imaging: MRI <p><u>For the purpose of PLAB:</u> The normal level of prolactin is less than 400 mU/L. A very high prolactin level (>5000 mU/L) usually means that a prolactinoma is present. Levels in between may be due to a prolactinoma, or to other causes</p>
9.	<p>A 50 year old lady presents with tiredness and weight gain over the last 6 months. She has glucose in her urine and has recently been diagnosed with hypertension. Investigations were performed and a diagnosis of Cushing's disease was made. Which of the following findings is NOT found in Cushing's disease?</p> <p>A. A high adrenocorticotrophic hormone (ACTH) level B. Failure to suppress morning cortisol with dexamethasone C. Hypertension requiring more than 2 antihypertensive agents D. Cortisol suppression with a high dose of dexamethasone E. Unilateral adrenal enlargement</p>



One must remember that Cushing's disease is not the same as Cushing's syndrome. Cushing's syndrome are clinical signs and symptoms of excess cortisol. Cushing's disease is a pituitary adenoma that causes Cushing's syndrome. Note however, Cushing's syndrome could be caused by many other aetiologies besides a pituitary adenoma.

In this stem, they are asking about Cushing's disease (pituitary adenoma causing Cushing's syndrome).

In Cushing's disease, the pituitary adenoma produces massive amounts of ACTH which travels through the bloodstream and causes the normal adrenal glands to make excessive amounts of cortisol. This can lead to hyperactivity of both adrenal glands called bilateral adrenal hyperplasia. Remember that both adrenals would respond to ACTH equally causing bilateral adrenal hyperplasia rather than unilateral adrenal enlargement.

Cushing's syndrome

- A clinical state caused by prolonged exposure to elevated levels of either endogenous or exogenous glucocorticoids

Causes can be divided into 2 groups:

- Adrenocorticotrophic hormone (ACTH)-dependent disease:
 - Excessive ACTH from the pituitary (Cushing's disease)
 - Ectopic ACTH-producing tumours (Especially small cell lung cancer and carcinoid tumours)
- Non-ACTH-dependent:
 - Adrenal adenomas
 - Adrenal carcinomas
 - Excess glucocorticoid administration → This is the chief cause

Investigations:

Outpatient tests

- 24-hour urinary free cortisol → as an outpatient screening tool
- Overnight dexamethasone suppression test → Administration of 1mg dexamethasone at midnight is followed by a serum cortisol measurement at 9 a.m. Cortisol < 50 nmol/L makes Cushing's unlikely. The 1 mg overnight dexamethasone suppression test is the best initial diagnostic test to establish a diagnosis of Cushing syndrome.

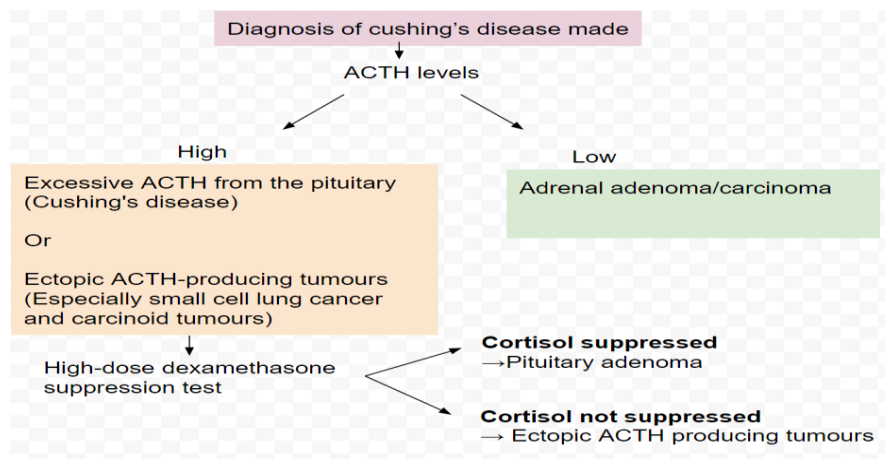
Inpatient tests

- ACTH levels → This is the next test to do once the diagnosis of Cushing's syndrome is confirmed. We do this test to differentiate between ACTH-dependent and ACTH-independent aetiologies. ACTH levels are elevated with either a pituitary source of ACTH such as an adenoma or with an ectopic source.
- High-dose dexamethasone suppression test → This test is done to differentiate between a pituitary adenoma and an ectopic source. The output of a pituitary adenoma will suppress with high-dose dexamethasone (i.e. cortisol suppressed). The output of an ectopic source will not suppress with high-dose dexamethasone (i.e. cortisol not suppressed).



The reason that cortisol is suppressed in pituitary adenoma is because the adenoma is semi-autonomous. A low dose dexamethasone will not suppress it but a high dose dexamethasone will. Whereas, ectopic ACTH producing tumours are fully autonomous and will not respond to a high dose dexamethasone suppression test.

Investigations for Cushing's syndrome is a must know especially when to use a high dose dexamethasone suppression test. It is a commonly asked question.



10. A 29 year old lady comes to the emergency department with complaints of palpitations, and excessive sweating that has been present for the past 4 days. She also feels warmer than usual. Her heart rate is 154 bpm and has an irregular rhythm. Her temperature is 38.7°C. What is the SINGLE most appropriate management?

- A. Amiodarone
B. Beta blockers
C. Adenosine
D. Verapamil
E. Flecainide

From the symptoms, this patient is likely having a thyroid storm. She is having atrial fibrillation secondary to thyrotoxicosis. Thyroid crisis represents a rare, but life-threatening, exacerbation of the manifestations of thyrotoxicosis.

B-adrenergic blocking agents are essential in the management to control tachycardia, tremor, and other adrenergic manifestations:

→Propranolol in divided doses or as an infusion would be given

Manifestations of hyperthyroidism (all forms)

Symptoms

- Hyperactivity, irritability, altered mood, insomnia
- Heat intolerance, sweating
- Palpitations
- Fatigue, weakness
- Dyspnoea



	<ul style="list-style-type: none">• <i>Weight loss with increased appetite</i>• <i>Pruritus</i>• <i>Increase stool frequency</i>• <i>Thirst and polyuria</i>• <i>Oligomenorrhoea or amenorrhoea, loss of libido, erectile dysfunction</i> <p><i>Signs</i></p> <ul style="list-style-type: none">• <i>Sinus tachycardia, atrial fibrillation</i>• <i>Fine tremor, hyperreflexia</i>• <i>Warm, moist skin</i>• <i>Palmar erythema</i>• <i>Hair loss</i>• <i>Muscle weakness and wasting</i>
11.	<p>A 44 year old man with acute renal failure presents with palpitations. His ECG shows tall tented T waves and a wide QRS complex. What is the SINGLE most appropriate next step?</p> <p>A. Dialysis B. IV calcium chloride C. IV insulin with dextrose D. Calcium resonium E. Nebulized salbutamol</p> <p><i>The likely diagnosis here is hyperkalaemia. Both IV calcium gluconate or IV calcium chloride can be used when there is ECG changes in hyperkalaemia. We use it to stabilise the cardiac membrane.</i></p> <p>Hyperkalaemia</p> <p><i>Untreated hyperkalaemia may cause life-threatening arrhythmias. ECG changes seen in hyperkalaemia include tall-tented T waves, small P waves, widened QRS leading to a sinusoidal pattern and asystole</i></p> <p>Causes of hyperkalaemia that are important for PLAB:</p> <ul style="list-style-type: none">• <i>Acute renal failure</i>• <i>Potassium sparing diuretics, ACE inhibitors, angiotensin 2 receptor blockers, spironolactone</i>• <i>Metabolic acidosis</i>• <i>Addison's</i> <p>Management</p> <ol style="list-style-type: none">4. <i>Stop drugs that cause hyperkalaemia</i>5. <i>If ECG changes of hyperkalaemia are seen → IV calcium gluconate</i>



	<ul style="list-style-type: none">• IV calcium gluconate is used to stabilise the cardiac membrane• Note that ECG changes are more accurate in identifying cardiac toxicity than plasma K⁺ levels <p>6. If severely hyperkalemic and short-term shift in K⁺ from extracellular to intracellular fluid compartment is needed → Insulin and dextrose infusion</p> <p><i>Other methods to remove K⁺ from the body</i></p> <ul style="list-style-type: none">• Calcium resonium → lowers potassium very slowly by binding it in the gut• Loop diuretics• Dialysis
12.	<p>A 39 year old lady presents with gradually worsening headaches, visual disturbance, and lack of energy. MRI shows a 15mm tumour in the pituitary fossa. She has been on cabergoline for treatment of her prolactinoma but has not had any response. What is SINGLE most appropriate management?</p> <p>A. Radiotherapy B. Octreotide C. Craniotomy D. Transsphenoidal surgery E. Chemotherapy</p> <p><i>Since dopamine agonists here have been shown to be ineffective. Transsphenoidal surgery is appropriate.</i></p> <p>Prolactinoma Management</p> <p>Drug therapy - dopamine agonists</p> <ul style="list-style-type: none">• Suppresses prolactin in most patients, with secondary effects of normalization of gonadal function and terminates galactorrhoea• Shrinks tumours → by shrinking the tumour, restoration of other hormonal axes may occur• Corrects visual field defect by chiasmal decompression thus immediate surgical decompression is not necessary• Note: Cabergoline is more effective in normalization of prolactin in microprolactinoma compared to bromocriptine. It is also associated with fewer side effects than bromocriptine <p>Surgery</p> <ul style="list-style-type: none">• Since the introduction of dopamine agonist treatment, transsphenoidal surgery is indicated only for patients who are resistant to, or intolerant of, dopamine agonist treatment <p>Radiotherapy</p> <ul style="list-style-type: none">• Reduce the chance of recurrence (rarely needed)



13.	<p>A 45 year old woman has lost weight 12 kg over the past half year. She has also noticed episodes where she feels her heart beat beating rapidly. She has a regular pulse rate of 90 bpm. Her ECG shows sinus rhythm. What is the SINGLE most appropriate investigation to be performed?</p> <p>A. Thyroid antibodies B. Thyroid function test C. Adrenocorticotrophic hormone stimulation (Synacthen®) test D. Echocardiogram E. Plasma glucose</p> <p><u>Hyperthyroidism</u></p> <p><u>Symptoms:</u> <i>Weight loss, tachycardia, diarrhoea, oligomenorrhoea, irritability, heat intolerance, tremors, sweating and weight loss despite increased appetite, atrial fibrillation/sinus tachycardia</i></p> <p><i>The most sensitive test in thyroid diseases is the TSH. If the TSH is normal, then the patient is euthyroid.</i></p>
14.	<p>A 9 year old boy during operation and immediately after showed glycosuria. A day later his urinalysis was normal. What is the SINGLE most likely diagnosis?</p> <p>A. Pre-diabetic state B. Normal finding C. Type 1 diabetes mellitus D. Type 2 diabetes mellitus E. Maturity Onset Diabetes of the Young</p> <p><i>Glycosuria fairly common after an operation. Stress during operation can cause transient hyperglycaemia causing glycosuria secondary to stress induced rise of cortisol which becomes normal after some time.</i></p>
15.	<p>A 42 year old lady has unexplained milk secretion from her nipples. Her last menstrual period was 6 months ago. She says she has been experiencing a loss of libido. What is the SINGLE most likely diagnosis?</p> <p>A. Hyperprolactinaemia B. Cushing's syndrome C. Pheochromocytoma D. Hyperthyroidism E. Hypoparathyroidism</p>



Hyperprolactinaemia

Excess prolactin secretion is a common clinical problem in women and causes the syndrome of galactorrhoea-amenorrhoea. The amenorrhoea appears to be caused by inhibition of hypothalamic release of luteinizing hormone releasing hormone (LHRH) with a decrease in luteinizing hormone (LH) and follicle-stimulating hormone (FSH) secretion.

Prolactin inhibits the LH surge that causes ovulation.

Although hyperprolactinaemia is also seen in men, gynecomastia and especially galactorrhoea are very rare.

Etiology

- *hyperprolactinaemia can be seen in natural physiologic states such as pregnancy, nipple stimulation/suckling, stress*
- *Pituitary tumours such as prolactinomas*
- *Hypothalamic disease → mass compressing stalk (craniopharyngioma, meningioma)*
- *Hyperprolactinaemia can also occur with decreased inhibitory action of dopamine. (e.g. Antipsychotic agents)*
- *Hypothyroidism → TRH increases prolactin*

Clinical of Hyperprolactinaemia

- *Galactorrhoea → usually in women. Men rarely get galactorrhoea*
- *Menstrual abnormalities → amenorrhoea or oligomenorrhoea,*
- *Disturbed gonadal function in men → erectile dysfunction, decreased libido, gynecomastia in men, reduced fertility*

Clinical features of Mass effects (macroadenomas only)

- *Headaches and visual field defects (uni- or bitemporal field defects)*
- *Hypopituitarism*

Diagnosis

- *Always exclude states such as pregnancy, lactation, hypothyroidism and medications before starting the work-up of hyperprolactinaemia*
- *Serum prolactin <2,000mU/L is suggestive of a tumour → either a microprolactinoma or a non-functioning macroadenoma compressing the pituitary stalk*
- *Serum prolactin >4,000mU/L is diagnostic of a macroprolactinoma.*
- *Imaging: MRI*

For the purpose of PLAB:

The normal level of prolactin is less than 400 mU/L. A very high prolactin level (>5000 mU/L) usually means that a prolactinoma is present. Levels in between may be due to a prolactinoma, or to other causes



16. A 32 year old man has been repeatedly admitted to the hospital for what was described as anxiety or panic attacks associated with palpitations. On occasions he is found to be hypertensive and tremulous. What is the SINGLE most likely diagnosis?

- A. Hyperthyroidism
- B. Panic attacks
- C. Pheochromocytoma**
- D. Cushing's disease
- E. Generalized anxiety disorder

Pheochromocytoma

Pheochromocytoma is a rare catecholamine secreting tumour.

Rule of 10

- bilateral in 10%
- malignant in 10%
- extra-adrenal in 10% (most common site = organ of Zuckerkandl, adjacent to the bifurcation of the aorta)
- 10% are familial and may be associated with MEN type II, neurofibromatosis and von Hippel-Lindau syndrome
- 10% not associated with hypertension

Features are typically episodic

- Hypertension (around 90% of cases and may be sustained)
- Headaches
- Palpitations
- Profuse sweating
- Anxiety
- Tremor

Mnemonic

PHaeochromocytoma

P → Palpitations

H → Headaches

PH → PHlushings (flushing)

Tests

- 24 hr urinary collection of metanephrines (sensitivity 97%), Note: this has replaced a 24 hr urinary collection of catecholamines (sensitivity 86%)

Management

Surgical resection of the tumour is the treatment of choice and usually results in cure of the hypertension. However, the patient must first be stabilized with medical management:

- alpha-blocker (e.g. phenoxybenzamine)
- beta-blocker (e.g. propranolol) Note: Alpha blocker must be given before a beta blocker



	<p><i>The reason behind medical management with alpha-blockers and beta-blockers is it is required to control blood pressure to prevent intraoperative hypertensive crises.</i></p> <p><i>Alpha blockade with phenoxybenzamine is started at least 7 to 10 days before operation to allow for expansion of blood volume. Only once this is achieved is beta blockade considered. If beta blockade is started too soon, unopposed alpha stimulation can precipitate a hypertensive crisis.</i></p>
17.	<p>A 32 year old woman with headaches and lethargy has hypertension. A recent blood test shows a serum potassium of 2.9 mmol/l. What is the SINGLE most appropriate hormone test to order?</p> <p>A. Aldosterone B. Cortisol C. Thyroxine D. Renin E. Testosterone</p> <p><i>Hypertension and hypokalemia is seen in hyperaldosteronism. Aldosterone would be the most appropriate hormone test.</i></p> <p>Conn's syndrome (Adrenal adenoma)</p> <p>Think of Conn's in these contexts:</p> <ul style="list-style-type: none">• Hypertension associated with hypokalaemia• Refractory hypertension, eg despite ≥ 3 antihypertensive drugs• Hypertension occurring before age 40 <p><i>Classic features include:</i></p> <ul style="list-style-type: none">• Hypertension• Hypokalaemia (usually < 3.5 mmol/L, although 70% of patients may be normokalaemic)• Metabolic alkalosis• Sodium may be normal or at the high end of normal• Weakness may be present from hypokalaemia.• Headaches and lethargy may also be present. <p>Management</p> <p><i>Medical management is used in the period prior to surgery. Medical management involves the use of aldosterone antagonists - eg, spironolactone.</i></p> <p><i>Surgery is the definitive treatment. Surgical treatment involves adrenalectomy. Laparoscopic surgery is safe and effective and may be better than open surgery.</i></p>



18.	<p>A 52 year old woman diagnosed with breast cancer presents with urinary frequency. Which part of the brain is the metastasis spread to?</p> <p>A. Brain stem B. Pons C. Medulla D. Diencephalon E. Cerebral cortex</p> <p><i>The topic to be discussed here is Diabetes Insipidus which accounts for her urinary frequency. In this question, cranial diabetes insipidus is described. It is due to deficiency of circulating arginine vasopressin (antidiuretic hormone). The pathophysiology behind this is pituitary infiltration by metastases originating from breast. A little anatomy knowledge is needed in this question. Among all of the answers, diencephalon would fit as it gives rise to the posterior forebrain structures including the thalamus, hypothalamus, posterior portion of the pituitary gland, and pineal gland.</i></p>
19.	<p>A 45 year old lady presents with diarrhea, vomiting, and severe abdominal pain. Examination reveals that her skin is hyperpigmented. Her blood pressure is 70/55 mmHg. What is the SINGLE most likely electrolyte abnormality to be found?</p> <p>A. Sodium 130 mmol/L, potassium 6.2 mmol/L B. Sodium 125 mmol/L, potassium 2.9 mmol/L C. Sodium 140 mmol/L, potassium 4.5 mmol/L D. Sodium 150 mmol/L, potassium 3.5 mmol/L E. Sodium 150 mmol/L, potassium 5.6 mmol/L</p> <p><i>Diarrhoea, vomiting, severe abdominal pain, tanned skin (hyperpigmentation) and hypotension points towards Addison's disease where hyponatraemia and hyperkalaemia are seen.</i></p> <p>Addison's disease Associated electrolyte abnormalities:</p> <ul style="list-style-type: none">• Hyperkalaemia• Hyponatraemia• Hypoglycaemia• Metabolic acidosis <p>It may be easier to think of the hormones that are involved:</p> <p>ACTH ↑ → hyperpigmentation</p> <p>Aldosterone ↓ → Na↓ → Hypotension → K↑ → H↑ → Metabolic acidosis</p> <p>Cortisol ↓ → Arterial hypotension → Hypoglycaemia</p>



20.

A 40 year old man complains of thirst and lethargy. He has a blood pressure of 145/95 mmHg. His blood tests show:

Serum calcium 3.5 mmol/l
Serum potassium 4.5 mmol/l
Serum sodium 149 mmol/l

What is the SINGLE most appropriate initial management?

A. IV fluids

- B. Calcitonin
- C. IV hydrocortisone
- D. Furosemide
- E. Cinacalcet hydrochloride

The first step in management in hypercalcaemia is always rehydration with IV fluids.

The given scenario has a slightly high BP. This can be found in hypercalcaemia as well.

Hypercalcaemia

Aetiology

- *Primary Hyperparathyroidism → This is the main cause of hypercalcaemia. It is the most common cause of hypercalcaemia but it is usually mild most of the time so most patient have no symptoms at all*
- *Malignancy → i.e. multiple myeloma, production of PTH like molecule (Squamous cell carcinoma of the lung). This is a common cause of hypercalcaemia that requires hospital admission*
- *Familial Hypocalciuric hypercalcaemia*
- *Immobilization*
- *Sarcoidosis*

Clinical features

Mnemonic: "moans, stones, groans, and bones".

- *Neuro and psych: Hypercalcemia results in decreased mental activity leading to lethargy, confusion and depression (Groans)*
- *Gastrointestinal: Hypercalcemia results in decreased bowel activity such as constipation (Moans)*
- *Renal: Hypercalcemia results in polyuria and polydipsia because of the induction of nephrogenic diabetes insipidus. Calcium also precipitates in the kidney, resulting in both kidney stones as well as nephrolithiasis. (Stones)*
- *Bone pain is only seen when it is hyperparathyroidism which is causing hypercalcaemia (Bones)*
- *Cardiovascular: The ECG shows a short QT*



	<p>Hypercalcaemia: management</p> <ul style="list-style-type: none">• The initial management of hypercalcaemia is rehydration with normal saline, typically 3-4 litres/day. Increasing the circulating volume with 0.9% saline, helps to increase the urinary output of calcium• Following rehydration bisphosphonates may be administered intravenously. <p>Other less used options include:</p> <ul style="list-style-type: none">• Calcitonin → It has fewer side-effects than bisphosphonates but is less effective in reducing hypercalcaemia.• Steroids in sarcoidosis• Cinacalcet hydrochloride is a calcimimetic agent that effectively reduces parathyroid levels in patients with secondary hyperparathyroidism• Haemodialysis or peritoneal dialysis may be relevant in patients with severe hypercalcaemia secondary to renal failure• Furosemide has a limited role → It is occasionally used where there is fluid overload but it does not reduce serum calcium
21.	<p>A 27 year old woman presents with tremors, anxiety. She has a history of significant weight loss over the last 6 months. She has a heart rate of 112 beats/minute. Mild proptosis was seen on examination. What is the SINGLE most likely mechanism that accounts for her symptoms?</p> <p>A. Deficiency in thyroid hormone B. Increased level of calcitonin C. Increased metabolic rate D. Insulin resistance E. Reduced caloric intake</p> <p><i>The given features are of thyrotoxicosis in which increased metabolism causes tremors, anxiety, weight loss and an increased heart rate.</i></p>
22.	<p>A 32 year old man has paroxysmal hypertension. He has frequent headaches and complains of profuse sweating. His blood pressure remains high despite having started on an ACE inhibitor. What is the SINGLE most likely diagnosis?</p> <p>A. Hyperthyroidism B. Panic attacks C. Essential hypertension D. Pheochromocytoma E. Generalized anxiety disorder</p>



23.	<p>An 8 month old infant presents with failure to thrive and constipation. On examination, a protruding tongue and widely set eyes are observed. His father and older sister has a history of prolonged neonatal jaundice. What is the SINGLE most likely diagnosis?</p> <p>A. Down's syndrome B. Fragile X syndrome C. Prader Willi syndrome D. DiGeorge syndrome E. Congenital hypothyroidism</p> <p><i>Failure to thrive, constipation, protruding tongue, widely set eyes are consistent with congenital hypothyroidism.</i></p> <p><i>This questions is purely a theoretical one and is probably rare to see in real life especially in the UK.</i></p> <p><i>Firstly, routine screening for congenital hypothyroidism is available throughout the UK. Thyroid stimulating hormone (TSH) analysis is performed on a single spot from the initial dried blood sample. Screening for congenital hypothyroidism is part of the newborn blood spot test which is offered when baby is 6 to 8 weeks old. So it would be unlikely that a congenital hypothyroidism would go undiagnosed until the 8 month of life.</i></p> <p><i>The reason for the family history of prolonged neonatal jaundice is because 15% of congenital hypothyroidism is caused by thyroid dyshormonogenesis defects transmitted by an autosomal recessive mode of inheritance. Thyroid hormone dysgenesis is caused by inborn errors of thyroid metabolism.</i></p> <p>Congenital hypothyroidism</p> <p>Clinical features</p> <ul style="list-style-type: none">• Physiological jaundice• Goitre• Feeding problems, constipation• Delay in reaching normal milestones of development, short stature• Coarse features with protruding tongue, broad flat nose, widely set eyes• Sparse hair and dry skin• Impaired mental development
24.	<p>A 44 year old woman has menstrual irregularities and unexplained milk discharge from her nipples. An MRI reveals a pituitary tumour. What is the SINGLE most likely visual abnormality associated with a pituitary tumour?</p> <p>A. Homonymous hemianopia B. Homonymous upper quadrantanopia C. Bitemporal hemianopia D. Cortical blindness E. Homonymous lower quadrantanopia</p>



	<p>Pituitary tumour by pressing optic chiasma causes bitemporal hemianopia</p> <p>Conn's syndrome (Adrenal adenoma)</p> <p>Think of Conn's in these contexts:</p> <ul style="list-style-type: none">• Hypertension associated with hypokalaemia• Refractory hypertension, eg despite ≥ 3 antihypertensive drugs• Hypertension occurring before age 40 <p>Classic features include:</p> <ul style="list-style-type: none">• Hypertension• Hypokalaemia (usually < 3.5 mmol/L, although 70% of patients may be normokalaemic)• Metabolic alkalosis• Sodium may be normal or at the high end of normal• Weakness may be present from hypokalaemia.• Headaches and lethargy may also be present. <p>Management</p> <p>Medical management is used in the period prior to surgery. Medical management involves the use of aldosterone antagonists - eg, spironolactone.</p> <p>Surgery is the definitive treatment. Surgical treatment involves adrenalectomy. Laparoscopic surgery is safe and effective and may be better than open surgery.</p>
25.	<p>A 35 year old man who a known type 1 diabetic has abdominal pain with deep breathing and drowsiness. The nurse has said that his breath has a fruity smell. His mucous membranes look dry. A urine dipstick testing shows marked glycosuria and ketonuria. Plasma glucose was elevated. What is the SINGLE most appropriate immediate management?</p> <p>A. Intravenous fluids followed by insulin B. Intravenous dextrose C. Oral rehydration D. Subcutaneous insulin immediately E. Intravenous antibiotics</p> <p>It is clear in this question that this man is suffering from diabetic ketoacidosis. Most DKA patients have a depletion of around 5 litres thus initial intravenous normal saline is so important. 0.9% saline is the replacement fluid of choice. Insulin should be infused continuously at 0.1u/kg/h.</p> <p>Diabetic ketoacidosis Characterised by hyperglycaemia, acidosis and ketonaemia May be a complication existing type 1 diabetes mellitus or be the first presentation</p> <p>Precipitating factors The most common are:</p>



	<ul style="list-style-type: none">• Infection• Missed insulin doses• Cardiovascular disease (e.g. stroke or myocardial infarction) <p>Features</p> <ul style="list-style-type: none">• Polyuria, polydipsia, dehydration, vomiting• Abdominal pain• Kussmaul respiration (deep hyperventilation)• Acetone-smelling breath ('pear drops' smell)• If severe → altered mental state, including coma <p>Diagnosis</p> <ul style="list-style-type: none">• Glucose > 11 or known diabetic• pH < 7.3• Bicarb < 15• Ketones > 3 or urine dipstick ketones ++ <p>Management</p> <ul style="list-style-type: none">• The most important initial intervention is appropriate fluid replacement followed by insulin administration.• When plasma glucose is below 12 mmol/L then replace normal saline with 5% dextrose to prevent over-rapid correction of blood glucose and hypoglycaemia.• Hypokalaemia may need to be corrected with KCL
26.	<p>A 43 year old man complains of thirst, lethargy and frequent urination. He was diagnosed with multiple myeloma. What is the SINGLE most likely biochemical abnormality to be associated with this condition?</p> <p>A. Hypercalcaemia B. Hyperkalaemia C. Hypernatraemia D. Hypocalcaemia E. Hypomagnesemia</p> <p>Hypercalcaemia</p> <p>Aetiology</p> <ul style="list-style-type: none">• <i>Primary Hyperparathyroidism → This is the main cause of hypercalcaemia. It is the most common cause of hypercalcaemia but it is usually mild most of the time so most patient have no symptoms at all</i>• <i>Malignancy → i.e. multiple myeloma, production of PTH like molecule (Squamous cell carcinoma of the lung). This is a common cause of hypercalcaemia that requires hospital admission</i>• <i>Familial Hypocalciuric hypercalcaemia</i>• <i>Immobilization</i>• <i>Sarcoidosis</i>



Clinical features

Mnemonic: "moans, stones, groans, and bones".

- *Neuro and psych: Hypercalcemia results in decreased mental activity leading to lethargy, confusion and depression (Groans)*
- *Gastrointestinal: Hypercalcemia results in decreased bowel activity such as constipation (Moans)*
- *Renal: Hypercalcemia results in polyuria and polydipsia because of the induction of nephrogenic diabetes insipidus. Calcium also precipitates in the kidney, resulting in both kidney stones as well as nephrolithiasis. (Stones)*
- *Bone pain is only seen when it is hyperparathyroidism which is causing hypercalcaemia (Bones)*
- *Cardiovascular: The ECG shows a short QT*

Hypercalcaemia: management

- *The initial management of hypercalcaemia is rehydration with normal saline, typically 3-4 litres/day. Increasing the circulating volume with 0.9% saline, helps to increase the urinary output of calcium*
- *Following rehydration bisphosphonates may be administered intravenously.*

Other less used options include:

- *Calcitonin → It has fewer side-effects than bisphosphonates but is less effective in reducing hypercalcaemia.*
- *Steroids in sarcoidosis*
- *Cinacalcet hydrochloride is a calcimimetic agent that effectively reduces parathyroid levels in patients with secondary hyperparathyroidism*
- *Haemodialysis or peritoneal dialysis may be relevant in patients with severe hypercalcaemia secondary to renal failure*
- *Furosemide has a limited role → It is occasionally used where there is fluid overload but it does not reduce serum calcium*

27. A 9 year old girl who is known to have type 1 diabetes mellitus presents with drowsiness and deep breathing. Her blood glucose is 18 mmol/L. She has a blood pressure of 120/80 mmHg and her mucous membranes are dry. What is the SINGLE most appropriate next step?

- A. Serum urea
- B. Blood culture
- C. Computed tomography
- D. HbA1c
- E. Arterial blood gas**

This child is likely suffering from diabetic ketoacidosis. An arterial blood gas at this time would be a good investigation of choice to determine the severity.



	<p>Diabetic ketoacidosis <i>Characterised by hyperglycaemia, acidosis and ketonaemia</i> <i>May be a complication existing type 1 diabetes mellitus or be the first presentation</i></p> <p>Precipitating factors <i>The most common are:</i></p> <ul style="list-style-type: none">• Infection• Missed insulin doses• Cardiovascular disease (e.g. stroke or myocardial infarction) <p>Features</p> <ul style="list-style-type: none">• Polyuria, polydipsia, dehydration, vomiting• Abdominal pain• Kussmaul respiration (deep hyperventilation)• Acetone-smelling breath ('pear drops' smell)• If severe → altered mental state, including coma <p>Diagnosis</p> <ul style="list-style-type: none">• Glucose > 11 or known diabetic• pH < 7.3• Bicarb < 15• Ketones > 3 or urine dipstick ketones ++ <p>Management</p> <ul style="list-style-type: none">• The most important initial intervention is appropriate fluid replacement followed by insulin administration.• When plasma glucose is below 12 mmol/L then replace normal saline with 5% dextrose to prevent over-rapid correction of blood glucose and hypoglycaemia.• Hypokalaemia may need to be corrected with KCL
28.	<p>An 8 year old boy with a body mass index is 25 kg/m² was admitted to a surgical ward following a road traffic accident. He was found to have glycosuria. When he recovered from his injury the glycosuria resolved. What is the SINGLE most appropriate follow-up investigation?</p> <p>A. Fasting blood glucose B. Glycated haemoglobin (HbA1c) C. 24 hour urine cortisol D. Random blood glucose E. Serum cortisol levels</p> <p><i>Glycosuria can be seen during any event that contains stress to the body. Stress related cortisol release can elevate blood glucose and in the severely ill patients they may elevate glucose beyond the renal threshold leading to glycosuria. Once the patient recovers, it glycosuria resolves. Nonetheless, a fasting blood glucose concentration should be performed in his follow up visits to exclude diabetes.</i></p>



29.	<p>A 55 year old man has weight loss, dyspnoea and syncope. He smokes 20 cigarettes/day. Investigations confirm squamous cell carcinoma in the left bronchus. What is the SINGLE most likely biochemical abnormality to be associated with this condition?</p> <p>A. Hypercalcaemia B. Hyperkalaemia C. Hypernatraemia D. Hypocalcaemia E. Hypomagnesemia</p>
30.	<p>A 55 year old man with a 4 year history feeling thirsty and urinating more often than usual presents with a deep painless ulcer on the heel. He also has a history of unexplained weight loss and feels tired all the time. What is the SINGLE most appropriate investigation?</p> <p>A. Arteriography B. Venography C. Blood sugar D. Biopsy for malignant melanoma E. Biopsy for pyoderma</p> <p><i>This patient has diabetic foot. Polydipsia, polyuria, fatigue and unexplained weight loss are symptoms of diabetes. Blood sugars would be the best investigation of choice.</i></p> <p>The main symptoms, which are common in diabetes are:</p> <ul style="list-style-type: none">• <i>urinating more often than usual, particularly at night</i>• <i>feeling very thirsty</i>• <i>feeling very tired</i>• <i>unexplained weight loss</i>• <i>itching around the penis or vagina, or frequent episodes of thrush</i>• <i>cuts or wounds that heal slowly</i>• <i>blurred vision (caused by the lens of the eye becoming dry)</i>
31.	<p>A 45 year old lady complains of galactorrhoea, decreased libido, amenorrhoea, weight gain, depression and fatigue. She also gives a history of constipation in the last 3 months. Her serum prolactin levels are 856 mU/L. What is the SINGLE most likely cause of her hyperprolactinaemia?</p> <p>A. Hypothyroidism B. Stress C. Pregnancy D. Prolactin secreting pituitary tumor E. Polycystic ovary syndrome</p>



32. A 35 year old man is feeling unwell after a recent myocardial infarction. A recent ECG of the patient shows widening of the QRS complex and tall-tented T wave. His recent blood results show:

Sodium 136 mmol/L
Potassium 6.2 mmol/L
Urea 5 mmol/L
Creatinine 90 μ mol/L

What is the SINGLE most appropriate management?

A. Intravenous calcium gluconate

- B. Oral calcium resonium
C. Oral calcium with vitamin D
D. Intravenous sodium chloride
E. Intravenous glucose

The ECG changes point towards hyperkalaemia. The need for urgent intravenous calcium gluconate is life saving as this patient could have a cardiac arrest.

Hyperkalaemia:

Untreated hyperkalaemia may cause life-threatening arrhythmias. ECG changes seen in hyperkalaemia include tall-tented T waves, small: P waves, widened QRS leading to a sinusoidal pattern and asystole

Causes of hyperkalaemia that are important for PLAB:

- Acute renal failure
- Potassium sparing diuretics, ACE inhibitors, angiotensin 2 receptor blockers, spironolactone
- Metabolic acidosis
- Addison's

Management

- ➔ Stop drugs that cause hyperkalaemia
- ➔ If ECG changes of hyperkalaemia are seen → IV calcium gluconate
- ➔ IV calcium gluconate is used to stabilise the cardiac membrane
- ➔ Note that ECG changes are more accurate in identifying cardiac toxicity than plasma K⁺ levels
- ➔ If severely hyperkalemic and short-term shift in K⁺ from extracellular to intracellular fluid compartment is needed → Insulin and dextrose infusion

Other methods to remove K⁺ from the body

- Calcium resonium → lowers potassium very slowly by binding it in the gut
- Loop diuretics
- Dialysis



33.	<p>A 55 year old woman has recently been diagnosed with type 2 diabetes mellitus. Her body mass index is 23 kg/m². Her last two random blood sugars that were taken were 8 and 7 mmol/l. Her blood pressure is 140/86 mmHg. Her total cholesterol is 4.7mmol/l. She has no symptoms but has microalbuminuria. What is the SINGLE most appropriate drug management?</p> <p>A. ACE inhibitors B. Calcium channel blockers C. Statin D. Statin and glibenclamide E. Beta-blockers</p> <p><i>Patients with type 2 diabetes mellitus have a considerably higher risk of cardiovascular morbidity and mortality and are disproportionately affected by cardiovascular disease. Thus they have a different set of rules when it comes to managing their hypertension.</i></p> <p><i>Provide lifestyle advice if blood pressure is confirmed as being consistently above 140/80 mmHg (or above 130/80 mmHg if there is nephropathy, retinopathy, or cerebrovascular damage). If lifestyle advice does not reduce blood pressure to below these targets, add a drug treatment</i></p> <p><i>First-line antihypertensive drug treatment should be a once-daily ACE inhibitor. This applies to most people.</i></p>
34.	<p>An 18 year old man has extreme thirst and polyuria. 6 months ago he had a significant head injury as the result of a road traffic accident. A diagnosis of diabetes insipidus is suspected. What is the SINGLE most likely laboratory findings after fluid deprivation before the administration of desmopressin?</p> <p>(normal plasma osmolality 275-295 mosmol/kg and normal urine osmolality is 300-900 mosmol/kg)</p> <p>A. Plasma osmolality of 280 mosmol/kg and urine osmolality of 250 mosmol/kg B. Plasma osmolality of 300 mosmol/kg and urine osmolality of 350 mosmol/kg C. Plasma osmolality of 335 mosmol/kg and urine osmolality of 700 mosmol/kg D. Plasma osmolality of 280 mosmol/kg and urine osmolality of 700 mosmol/kg E. Plasma osmolality of 335 mosmol/kg and urine osmolality of 200 mosmol/kg</p> <p><i>In diabetes Insipidus, one can expect excess fluid loss with urine. Urine osmolality would be low and plasma osmolality would be high.</i></p> <p><u>Diabetes Insipidus</u></p> <p><i>Fluid deprivation test and assessment of response to vasopressin:</i></p> <ol style="list-style-type: none"><i>1. Patient is then deprived of fluids</i><i>2. Plasma osmolality is measured 4 hourly and urine volume and osmolality every 2 hours</i><i>3. The patient is then given IM desmopressin with urine volume and urine and plasma osmolality measured over the next 4 hours.</i>



Understanding the results

Normal patient	Diabetes insipidus	
Fluid restriction causes a decrease in urine volume and an increase in urine osmolality	Despite fluid restriction, urine volume remains high and urine osmolality is decreased	
	Central Diabetes insipidus	Nephrogenic Diabetes insipidus
	Urine volume decreases and urine osmolality increases after administering desmopressin	There is no change after administering desmopressin

Plasma osmolality (mOsm/kg)

After fluid deprivation, If plasma osmolality >305, the patient has diabetes insipidus

Urine osmolality (mOsm/kg)

	Central Diabetes insipidus	Nephrogenic Diabetes insipidus
After fluid deprivation	<300	<300
After desmopressin	>800	<300

35. A type 2 diabetes mellitus is undergoing a major surgery. He is on long acting insulin and gliclazide. What is the SINGLE most appropriate pre-op management?
- A. Start him in IV insulin and glucose and K⁺ just before surgery
B. Stop his oral hypoglycaemics on the day of the procedure
C. Continue regular oral hypoglycaemic
D. Stop oral hypoglycaemic the night before surgery and start IV insulin sliding scale with glucose and K⁺ before surgery
E. Change to short acting oral hypoglycaemic

Management of the diabetic patient pre-op

- Clarify if the patient is oral-controlled, insulin-dependent or brittle insulin-dependent
- Diabetics should be first on operating lists to ensure timings can be as predictable as possible for blood sugar management.



	<p>Minor surgery</p> <ul style="list-style-type: none">• <i>Oral-controlled: Give normal regimen.</i>• <i>Insulin-controlled: Omit preoperative insulin on day of surgery; monitor blood sugar (BS) every 4 hours; restart normal insulin once oral diet is established.</i> <p>Major surgery</p> <ul style="list-style-type: none">• <i>Oral-controlled: Omit long-acting hypoglycaemics preoperatively. Monitor BS every 4 hours.</i>• <i>Insulin-controlled: Commence on IV insulin sliding scale preoperatively once nil by mouth (NBM) and continue until normal diet is re-established. Check BS every 4 hours.</i>
36.	<p>A 33 year old woman complains of tiredness, lethargy and constipation. On inspection, she has a dry coarse skin, hair loss and cold peripheries. What is the SINGLE most likely diagnosis?</p> <p>A. Hypothyroidism B. Hyperthyroidism C. Crohn's disease D. Addison's disease E. Irritable bowel syndrome</p> <p>Hypothyroidism</p> <p>Primary hypothyroidism</p> <ul style="list-style-type: none">• <i>Autoimmune hypothyroidism - Hashimoto's thyroiditis (associated with a goitre) and atrophic thyroiditis.</i>• <i>Iatrogenic - radioiodine treatment, surgery, radiotherapy to the neck</i>• <i>Iodine deficiency - the most common cause worldwide and goitre is present (uncommon in UK)</i>• <i>Drugs - amiodarone, contrast media, iodides, lithium and antithyroid medication.</i>• <i>Congenital defects - e.g. absence of thyroid gland</i> <p>Secondary hypothyroidism</p> <ul style="list-style-type: none">• <i>Isolated TSH deficiency</i>• <i>Hypopituitarism - neoplasm, infiltrative, infection and radiotherapy</i>• <i>Hypothalamic disorders - neoplasms and trauma</i> <p>Symptoms</p> <ul style="list-style-type: none">• <i>Tiredness, lethargy, intolerance to cold</i>• <i>Dry skin and hair loss</i>• <i>Slowing of intellectual activity - eg, poor memory and difficulty concentrating.</i>• <i>Constipation</i>• <i>Decreased appetite with weight gain.</i>• <i>Menorrhagia and later oligomenorrhoea or amenorrhoea</i> <p>Signs</p> <ul style="list-style-type: none">• <i>Dry coarse skin, hair loss and cold peripheries</i>



	<ul style="list-style-type: none">• Puffy face, hands and feet (myxoedema)• Bradycardia <p><i>In autoimmune hypothyroidism, patients may have features of other autoimmune diseases, such as, vitiligo, pernicious anaemia, Addison's disease and diabetes mellitus.</i></p>
37.	<p>A 36 year old male diagnosed with glioblastoma has been receiving dexamethasone for several months to treat cerebral oedema. He started having diarrhoea and vomiting for the last 3 days. He complains of abdominal pain. He feels dizzy when he gets up from bed or stands up from a chair. What is the SINGLE most likely reason for his symptoms?</p> <p>A. Adrenal insufficiency B. Dehydration C. Steroids side effects D. Raised intracranial pressure E. Cushing's disease</p> <p><i>The symptoms here are consistent with adrenal insufficiency. The pathogenesis in this question is not clear. But it is most likely due to cessation of steroids causing Addisonian crisis.</i></p> <p><i>Bear in mind that, the commonest cause of secondary adrenal insufficiency is iatrogenic. This is due to long term steroid therapy leading to suppression of the pituitary-adrenal axis. This only becomes apparent on withdrawal of the steroids. Other causes are rare and include hypothalamic-pituitary disease leading to decreased ACTH production.</i></p> <p><i>Steroids side effect is not the right answer because side effects of steroids do not produce these symptoms. It is the cessation of the steroids that cause the symptoms of vomiting, abdominal pain and the sudden dizziness on standing which is evidence of postural hypotension.</i></p> <p>Adrenal Insufficiency</p> <p><u>Primary insufficiency (Addison's disease)</u></p> <ul style="list-style-type: none">• An inability of the adrenal glands to produce enough steroid hormones. The most common cause for this in the developed world is autoimmune disease. <p><u>Secondary insufficiency</u></p> <ul style="list-style-type: none">• Inadequate pituitary or hypothalamic stimulation of the adrenal glands. <p>Features</p> <ul style="list-style-type: none">• Nausea/vomiting• Abdominal pain• Diarrhoea/constipation• Weakness• Postural hypotension, dizzy• Hyperpigmentation (only for Addison's disease) <p><i>Think of adrenal insufficiency in all with unexplained abdominal pain or vomiting</i></p>



	<p><i>It is especially important to note for the exam that in secondary insufficiency, there is no hyperpigmentation of the skin as ACTH is decreased. Hyperpigmentation would only happen in primary insufficiency (Addison's disease) as the ACTH is extremely high.</i></p>
38.	<p>A 31 year old man has profuse sweating, palpitations, headaches, flushing and hypertension. He was diagnosed with phaeochromocytoma and is to have a surgical removal of the tumour in a week. What is the SINGLE most appropriate initial medication to prescribe?</p> <p>A. Tricyclic antidepressant B. Diazepam C. Diuretics D. Alpha-blocker E. Beta-blocker</p>
39.	<p>A 24 year old man is admitted to the emergency department with abdominal pain and vomiting. He is discovered to have diabetic ketoacidosis. What is the SINGLE most appropriate immediate management?</p> <p>A. Intravenous fluids and insulin infused continuously B. Intravenous dextrose C. Bolus of intravenous insulin D. Subcutaneous insulin immediately E. Intravenous antibiotics</p> <p><i>It is clear in this question that this man is suffering from diabetic ketoacidosis. Most DKA patients have a depletion of around 5 litres thus initial intravenous normal saline is so important. 0.9% saline is the replacement fluid of choice. Insulin should be infused continuously at 0.1u/kg/h.</i></p> <p><i>Only give a stat dose of insulin if there is a delay in starting the insulin infusion.</i></p> <p>Diabetic ketoacidosis <i>Characterised by hyperglycaemia, acidosis and ketonaemia</i> <i>May be a complication existing type 1 diabetes mellitus or be the first presentation</i></p> <p>Precipitating factors <i>The most common are:</i></p> <ul style="list-style-type: none">• Infection• Missed insulin doses• Cardiovascular disease (e.g. stroke or myocardial infarction) <p>Features</p> <ul style="list-style-type: none">• Polyuria, polydipsia, dehydration, vomiting• Abdominal pain• Kussmaul respiration (deep hyperventilation)• Acetone-smelling breath ('pear drops' smell)



	<ul style="list-style-type: none">• <i>If severe → altered mental state, including coma</i> <p>Diagnosis</p> <ul style="list-style-type: none">• <i>Glucose > 11 or known diabetic</i>• <i>pH < 7.3</i>• <i>Bicarb < 15</i>• <i>Ketones > 3 or urine dipstick ketones ++</i> <p>Management</p> <ul style="list-style-type: none">• <i>The most important initial intervention is appropriate fluid replacement followed by insulin administration.</i>• <i>When plasma glucose is below 12 mmol/L then replace normal saline with 5% dextrose to prevent over-rapid correction of blood glucose and hypoglycaemia.</i>• <i>Hypokalaemia may need to be corrected with KCL</i>
40.	<p>A 34 year old woman presents with truncal obesity, easy bruising, hyperglycemia and depression. She has a blood pressure of 165/95 mmHg. Which of the following investigations will be most helpful in localizing the cause of Cushing's syndrome?</p> <p>A. Serum cortisol B. 24-hour urinary free cortisol C. Low dose dexamethasone suppression test D. High dose dexamethasone suppression test E. Overnight dexamethasone suppression test</p>
41.	<p>A 12 year old boy is clinically obese and is the shortest in his class. His medical history includes having a renal transplant 2 years ago. There are purple striae noticed on his skin. What is the SINGLE most likely diagnosis?</p> <p>A. Cushing's syndrome B. Congenital hypothyroidism C. Pseudo-Cushing's syndrome D. Laurence–Moon syndrome E. Down syndrome</p> <p><i>Cushing's syndrome is the most likely diagnosis here. The history of a renal transplant means that he is probably taking exogenous steroids which are causing his syndrome.</i></p>
42.	<p>A 9 year old boy had glycosuria following an appendectomy. He has no history of diabetes mellitus. A few days later, his glycosuria resolved. What is the SINGLE most appropriate follow-up investigation?</p> <p>A. Fasting blood glucose B. Glycated haemoglobin (HbA1c) C. 24 hour urine cortisol D. Random blood glucose E. Serum cortisol levels</p>



Glycosuria can be seen during any event that contains stress to the body. Stress related cortisol release can elevate blood glucose and in the severely ill patients they may elevate glucose beyond the renal threshold leading to glycosuria. Once the patient recovers, it glycosuria resolves. Nonetheless, a fasting blood glucose concentration should be performed in his follow up visits to exclude diabetes.

43.

A 44 year old woman has recently undergone surgery for a fractured left hip. Her blood tests show a low serum calcium level, low serum phosphate level and raised alkaline phosphatase. What is the SINGLE most likely diagnosis?

- A. Paget's disease
- B. Osteoporosis
- C. Multiple myeloma
- D. Osteomalacia**
- E. Rickets

Remember the bone profile differences:

	Osteoporosis	Paget's Disease	Osteomalacia
Serum Calcium	Normal	Normal	Low
Serum phosphate	Normal	Normal	Low
Alkaline phosphate	Normal	High	High

Osteomalacia

- Normal bony tissue but decreased mineral content

We use the term rickets the epiphysis has not fused (in younger people)

Commonly asked causes

- Vitamin D deficiency e.g. malabsorption, lack of sunlight, diet
- Renal failure
- Drug induced e.g. anticonvulsants

Presentation:

- Bone pain
- Fractures
- Muscle tenderness



44. A 26 year old woman with diagnosed carcinoma of the bronchus has been receiving steroid treatment for the last several months. She started vomiting and having severe abdominal pain for the past 2 days. She also complains of sudden dizziness in the morning. What is the SINGLE most likely reason for her symptoms?

- A. Steroids side effects
- B. Metastasis of cancer
- C. Adrenal insufficiency**
- D. Conn's disease
- E. Cushing's disease

The symptoms here are consistent with adrenal insufficiency. The pathogenesis in this question is not clear. But it is most likely due to cessation of steroids causing Addisonian crisis.

Bare in mind that, the commonest cause of secondary adrenal insufficiency is iatrogenic. This is due to long term steroid therapy leading to suppression of the pituitary-adrenal axis. This only becomes apparent on withdrawal of the steroids. Other causes are rare and include hypothalamic-pituitary disease leading to decreased ACTH production.

Steroids side effect is not the right answer because side effects of steroids do not produce these symptoms. It is the cessation of the steroids that cause the symptoms of vomiting, abdominal pain and the sudden dizziness in the morning which is evidence of postural hypotension.

Adrenal Insufficiency

Primary insufficiency (Addison's disease)

- An inability of the adrenal glands to produce enough steroid hormones. The most common cause for this in the developed world is autoimmune disease.

Secondary insufficiency

- Inadequate pituitary or hypothalamic stimulation of the adrenal glands.

Features

- Nausea/vomiting
- Abdominal pain
- Diarrhoea/constipation
- Weakness
- Postural hypotension, dizzy
- Hyperpigmentation (only for Addison's disease)

Think of adrenal insufficiency in all with unexplained abdominal pain or vomiting

It is especially important to note for the exam that in secondary insufficiency, there is no hyperpigmentation of the skin as ACTH is decreased. Hyperpigmentation would only happen in primary insufficiency (Addison's disease) as the ACTH is extremely high.



45.	<p>A 54 year old woman has presented with episodes of abdominal ache, vomiting and postural hypotension. She also has a dark pigmentation of her skin. A diagnosis of Addison's disease was made. What is the SINGLE most likely electrolyte abnormality expected in this patient?</p> <p>A. High sodium, Low potassium B. Low sodium, High potassium C. Low sodium, Low potassium D. High sodium, High potassium E. Low sodium, Normal potassium</p> <p><u>Addison's disease</u></p> <p><i>Associated electrolyte abnormalities:</i></p> <ul style="list-style-type: none">• <i>Hyperkalaemia</i>• <i>Hyponatraemia</i>• <i>Hypoglycaemia</i>• <i>Metabolic acidosis</i> <p><i>It may be easier to think of the hormones that are involved:</i></p> <p><i>ACTH ↑ → hyperpigmentation</i></p> <p><i>Aldosterone ↓ → Na↓ → Hypotension</i> <i>→ K↑</i> <i>→ H↑ → Metabolic acidosis</i></p> <p><i>Cortisol ↓ → Arterial hypotension</i> <i>→ Hypoglycaemia</i></p>
46.	<p>A 42 year old woman complains of tingling, numbness, paraesthesia, and involuntary spasm of the upper extremities. She has undergone a thyroidectomy for thyroid carcinoma a week ago. What is SINGLE most likely diagnosis?</p> <p>A. Thyroid storm B. Hyperparathyroidism C. Unilateral recurrent laryngeal nerve injury D. Hypokalaemia E. Hypocalcaemia</p> <p><i>Hypoparathyroidism is one of the well known causes of hypocalcaemia. It is seen especially after thyroid surgeries where the surgeon has to work in close proximity to the parathyroid gland.</i></p> <p>Hypocalcaemia</p>



	<p>Common causes</p> <ul style="list-style-type: none">• vitamin D deficiency (osteomalacia)• chronic renal failure• hypoparathyroidism (e.g. post thyroid/parathyroid surgery)• Hyperphosphatemia• Hypomagnesemia <p><i>The clinical history combined with parathyroid hormone levels will reveal the cause of hypocalcaemia in the majority of cases</i></p> <p>Clinical Findings</p> <p><i>Hypocalcaemia results in increased neural hyperexcitability such as seizures, tetany, circumoral numbness, and tingling of the extremities. Arrhythmias may develop because of a prolonged QT.</i></p> <p><i>A mnemonic to help is with clinical signs and symptoms is: "SPASMODIC"</i></p> <p><i>S → Spasm (carpopedal spasms = Trousseau's sign)</i></p> <p><i>P → Perioral paraesthesiae</i></p> <p><i>A → Anxious, irritable, irrational</i></p> <p><i>S → Seizures</i></p> <p><i>M → Muscle tone increased in smooth muscles</i></p> <p><i>O → Orientation impaired (time, place and person) and confusion</i></p> <p><i>D → Dermatitis</i></p> <p><i>I → Impetigo herpetiformis (rare and serious)</i></p> <p><i>C → Chvostek's sign, Cardiomyopathy (long QT interval on ECG)</i></p> <p><i>The examination findings that illustrate this deficit are:</i></p> <ol style="list-style-type: none">3. Trousseau's sign in which the wrist flexes and the fingers are drawn together in response to occlusion of the brachial artery.4. Chvostek's sign in which facial muscles twitch in response to tapping over the parotid, revealing neuromuscular excitability due to the low calcium. <p>Management</p> <ul style="list-style-type: none">• acute management of severe hypocalcaemia is with intravenous replacement. The preferred method is with intravenous calcium gluconate,• intravenous calcium chloride is more likely to cause local irritation• further management depends on the underlying cause
47.	<p>A 35 year old woman presents with visual problems and amenorrhoea. An MRI reveals a pituitary tumour. What is the SINGLE most likely visual abnormality?</p> <p>A. Homonymous hemianopia</p> <p>B. Tunnel vision</p> <p>C. Bitemporal hemianopia</p> <p>D. Glares and halos</p> <p>E. Homonymous lower quadrantanopia</p>



Pituitary tumour by pressing optic chiasma causes bitemporal hemianopia

Hyperprolactinaemia

Excess prolactin secretion is a common clinical problem in women and causes the syndrome of galactorrhoea-amenorrhoea. The amenorrhoea appears to be caused by inhibition of hypothalamic release of luteinizing hormone releasing hormone (LHRH) with a decrease in luteinizing hormone (LH) and follicle-stimulating hormone (FSH) secretion.

Prolactin inhibits the LH surge that causes ovulation.

Although hyperprolactinaemia is also seen in men, gynecomastia and especially galactorrhoea are very rare.

Etiology

- *hyperprolactinaemia can be seen in natural physiologic states such as pregnancy, nipple stimulation/suckling, stress*
- *Pituitary tumours such as prolactinomas*
- *Hypothalamic disease → mass compressing stalk (craniopharyngioma, meningioma)*
- *Hyperprolactinaemia can also occur with decreased inhibitory action of dopamine. (e.g. Antipsychotic agents)*
- *Hypothyroidism → TRH increases prolactin*

Clinical of Hyperprolactinaemia

- *Galactorrhoea → usually in women. Men rarely get galactorrhoea*
- *Menstrual abnormalities → amenorrhoea or oligomenorrhoea,*
- *Disturbed gonadal function in men → erectile dysfunction, decreased libido, gynecomastia in men, reduced fertility*

Clinical features of Mass effects (macroadenomas only)

- *Headaches and visual field defects (uni- or bitemporal field defects)*
- *Hypopituitarism*

Diagnosis

- *Always exclude states such as pregnancy, lactation, hypothyroidism and medications before starting the work-up of hyperprolactinaemia*
- *Serum prolactin <2,000mU/L is suggestive of a tumour → either a microprolactinoma or a non-functioning macroadenoma compressing the pituitary stalk*
- *Serum prolactin >4,000mU/L is diagnostic of a macroprolactinoma.*
- *Imaging: MRI*

For the purpose of PLAB:

The normal level of prolactin is less than 400 mU/L. A very high prolactin level (>5000 mU/L) usually means that a prolactinoma is present. Levels in between may be due to a prolactinoma, or to other causes



48.	<p>A 39 year old woman has been feeling lethargic and tired. She has a blood pressure of 160/90 mmHg despite being on enalapril. Her blood test show:</p> <p>Haemoglobin 130 g/L Serum sodium 144 mmol/L Serum potassium 3.1 mmol/L</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Cushing's syndrome B. Conn's syndrome C. Hyperparathyroidism D. Renal disease E. Pheochromocytoma</p> <p><u>Conn's syndrome (Adrenal adenoma)</u></p> <p>Think of Conn's in these contexts:</p> <ul style="list-style-type: none">• Hypertension associated with hypokalaemia• Refractory hypertension, eg despite ≥ 3 antihypertensive drugs• Hypertension occurring before age 40 <p>Classic features include:</p> <ul style="list-style-type: none">• Hypertension• Hypokalaemia (usually < 3.5 mmol/L, although 70% of patients may be normokalaemic)• Metabolic alkalosis• Sodium may be normal or at the high end of normal• Weakness may be present from hypokalaemia.• Headaches and lethargy may also be present. <p><u>Management</u></p> <p>Medical management is used in the period prior to surgery. Medical management involves the use of aldosterone antagonists - eg, spironolactone.</p> <p>Surgery is the definitive treatment. Surgical treatment involves adrenalectomy. Laparoscopic surgery is safe and effective and may be better than open surgery.</p>
49.	<p>A 64 year old man with multiple myeloma has been vomiting for the past 2 days. His blood tests show:</p> <p>Serum calcium 3.2 mmol/l Serum potassium 5 mmol/l Serum sodium 149 mmol/l Packed cell volume 55%</p>



What is the SINGLE most appropriate next step?

- A. IV insulin
- B. IV calcium gluconate
- C. IV fluids**
- D. IV bisphosphonates
- E. Oral bisphosphonates

Multiple myeloma itself is a cause of vomiting and is also associated with hypercalcaemia which can cause sickness. As the patient has been vomiting for 2 days there may be considerable dehydration. He also has hypercalcaemia which needs to be treatment with IV fluid.

Hypercalcaemia

Aetiology

- *Primary Hyperparathyroidism → This is the main cause of hypercalcaemia. It is the most common cause of hypercalcaemia but it is usually mild most of the time so most patient have no symptoms at all*
- *Malignancy → i.e. multiple myeloma, production of PTH like molecule (Squamous cell carcinoma of the lung). This is a common cause of hypercalcaemia that requires hospital admission*
- *Familial Hypocalciuric hypercalcaemia*
- *Immobilization*
- *Sarcoidosis*

Clinical features

Mnemonic: "moans, stones, groans, and bones".

- *Neuro and psych: Hypercalcemia results in decreased mental activity leading to lethargy, confusion and depression (Groans)*
- *Gastrointestinal: Hypercalcemia results in decreased bowel activity such as constipation (Moans)*
- *Renal: Hypercalcemia results in polyuria and polydipsia because of the induction of nephrogenic diabetes insipidus. Calcium also precipitates in the kidney, resulting in both kidney stones as well as nephrolithiasis. (Stones)*
- *Bone pain is only seen when it is hyperparathyroidism which is causing hypercalcaemia (Bones)*
- *Cardiovascular: The ECG shows a short QT*

Hypercalcaemia: management

- *The initial management of hypercalcaemia is rehydration with normal saline, typically 3-4 litres/day. Increasing the circulating volume with 0.9% saline, helps to increase the urinary output of calcium*
- *Following rehydration bisphosphonates may be administered intravenously.*

Other less used options include:



	<ul style="list-style-type: none">• <i>Calcitonin</i> → It has fewer side-effects than bisphosphonates but is less effective in reducing hypercalcaemia.• <i>Steroids in sarcoidosis</i>• <i>Cinacalcet hydrochloride</i> is a calcimimetic agent that effectively reduces parathyroid levels in patients with secondary hyperparathyroidism• <i>Haemodialysis or peritoneal dialysis</i> may be relevant in patients with severe hypercalcaemia secondary to renal failure• <i>Furosemide</i> has a limited role → It is occasionally used where there is fluid overload but it does not reduce serum calcium
50.	<p>A 45 year old man presents with bitemporal hemianopia and swelling of his hands. He says that his nose has become larger and his voice has become more hoarse. On examination, spade-like hands are seen. What is the SINGLE most definitive test to confirm the diagnosis?</p> <p>A. Early morning growth hormone B. Prolactin level C. Oral glucose tolerance (OGTT) with serial growth hormone measurements D. Random insulin-like growth factor (IGF-1) E. Short synacthen test</p> <p><i>The clinical symptoms along with the spade-like hands give the suspicion of acromegaly.</i></p> <p>Acromegaly investigations</p> <p><i>Growth hormone (GH) levels tend to vary during the day and are therefore unreliable and not recommended.</i></p> <p><i>The best initial test → Insulin like growth factor</i></p> <ul style="list-style-type: none">• <i>It is used as a screening test and occasionally used to monitor disease</i> <p><i>The most definitive test → Oral glucose tolerance (OGTT) with serial growth hormone measurements</i></p> <ul style="list-style-type: none">• <i>In normal patients, growth hormone is usually suppressed with glucose</i>• <i>In acromegaly, there is no suppression of growth hormone with glucose</i> <p><i>MRI scan of pituitary may show a tumour. MRI scan of pituitary is more sensitive than CT scan.</i></p>
51.	<p>A 63 year old man who takes spironolactone and ramipril for hypertension and was found to have elevated potassium of 5.8mmol/L on routine blood test while on a day ward. He is otherwise well and has no allergies. An ECG is carried out which is normal. What is the SINGLE best initial treatment in light of his potassium levels?</p> <p>Normal Lab values</p> <p>Potassium 3.5–5 mmol/L</p>



- A. Calcium gluconate IV
- B. Renal dialysis
- C. Stop spironolactone and ramipril**
- D. Recheck potassium level
- E. IV insulin and glucose

Spironolactone is a potassium sparing diuretics and ramipril is an ACEi. Both can cause hyperkalaemia.

The K⁺ is only slightly elevated, so stopping medication would suffice. We can expect potassium levels to fall. It is important to check for symptoms and do an ECG, but at this levels it is unlikely that patient is symptomatic or an ECG is abnormal.

In this question, the patient has a normal ECG with no symptoms so calcium gluconate is not indicated. This man is certainly not a candidate for dialysis.

Hyperkalaemia

Untreated hyperkalaemia may cause life-threatening arrhythmias. ECG changes seen in hyperkalaemia include tall-tented T waves, small P waves, widened QRS leading to a sinusoidal pattern and asystole

Causes of hyperkalaemia that are important for PLAB:

- Acute renal failure
- Potassium sparing diuretics, ACE inhibitors, angiotensin 2 receptor blockers, spironolactone
- Metabolic acidosis
- Addison's

Management

7. Stop drugs that cause hyperkalaemia
 8. If ECG changes of hyperkalaemia are seen → IV calcium gluconate
- IV calcium gluconate is used to stabilise the cardiac membrane
 - Note that ECG changes are more accurate in identifying cardiac toxicity than plasma K⁺ levels
9. If severely hyperkalemic and short-term shift in K⁺ from extracellular to intracellular fluid compartment is needed → Insulin and dextrose infusion

Other methods to remove K⁺ from the body

- Calcium resonium → lowers potassium very slowly by binding it in the gut
- Loop diuretics
- Dialysis



52.	<p>A 26 year old woman comes to the emergency department with vomiting, abdominal pain and tachypnoea. Her breath has a fruity smell. She has a heart rate of 99 beats/minute and a respiratory rate of 30 breaths/minute. Her blood pressure is 110/70 mmHg. Her blood and urine results show:</p> <p>Blood Ketones 3.3 mmol/L (high) Urine Ketones +++ Venous pH 7.2 (low) Blood Glucose 22 mmol/L (high)</p> <p>What is the SINGLE most appropriate immediate management?</p> <p>A. Intravenous fluids followed by insulin B. Intravenous dextrose C. Oral rehydration D. Subcutaneous insulin immediately E. Intravenous antibiotics</p> <p><i>It is clear in this question that this man is suffering from diabetic ketoacidosis. Most DKA patients have a depletion of around 5 litres thus initial intravenous normal saline is so important. 0.9% saline is the replacement fluid of choice. Insulin should be infused continuously at 0.1u/kg/h.</i></p> <p>Diabetic ketoacidosis <i>Characterised by hyperglycaemia, acidosis and ketonaemia May be a complication existing type 1 diabetes mellitus or be the first presentation</i></p> <p>Precipitating factors <i>The most common are:</i></p> <ul style="list-style-type: none">• Infection• Missed insulin doses• Cardiovascular disease (e.g. stroke or myocardial infarction) <p>Features</p> <ul style="list-style-type: none">• Polyuria, polydipsia, dehydration, vomiting• Abdominal pain• Kussmaul respiration (deep hyperventilation)• Acetone-smelling breath ('pear drops' smell)• If severe → altered mental state, including coma <p>Diagnosis</p> <ul style="list-style-type: none">• Glucose > 11 or known diabetic• pH < 7.3• Bicarb < 15• Ketones > 3 or urine dipstick ketones ++ <p>Management</p>
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	<ul style="list-style-type: none">• The most important initial intervention is appropriate fluid replacement followed by insulin administration.• When plasma glucose is below 12 mmol/L then replace normal saline with 5% dextrose to prevent over-rapid correction of blood glucose and hypoglycaemia.• Hypokalaemia may need to be corrected with KCL
53.	<p>A 19 year old man presents with weight loss, increasing thirst and increasing frequency of going to the washroom. His father, grandfather and his 2 sisters have been diagnosed with diabetes mellitus. What is the SINGLE most likely type of diabetes this man suffers from?</p> <p>A. Wolfram Syndrome B. Diabetes mellitus type 2 C. Latent autoimmune diabetes of adults (LADA) D. Maturity onset diabetes of the young E. Diabetic ketoacidosis</p> <p><i>MODY is a rare form of diabetes which is different from both Type 1 and Type 2 diabetes, and runs strongly in families. Maturity onset diabetes of the young is estimated to be the underlying cause in 0.5–1% of all patients with diabetes. A typical 'MODY patient' has young age of onset (</i></p> <p><i>The need to know so much detail for MODY is not necessary in PLAB. But there are three key features which one needs to know.</i></p> <ol style="list-style-type: none">1. Being young - diagnosed with diabetes under the age of 252. Having a strong family history. E.g. a parent with diabetes, with diabetes in two or more generations3. Manifest as mild hyperglycaemia
54.	<p>A 58 year old woman has tiredness and diarrhoea for the last few weeks. She has noticed that her skin looks tanned. She describes dizziness on standing up and recently started feeling nauseous. What is the SINGLE most likely electrolyte abnormality to be found?</p> <p>A. Sodium 120 mmol/L, potassium 5.9 mmol/L B. Sodium 125 mmol/L, potassium 2.9 mmol/L C. Sodium 140 mmol/L, potassium 4.5 mmol/L D. Sodium 150 mmol/L, potassium 3.5 mmol/L E. Sodium 150 mmol/L, potassium 5.6 mmol/L</p> <p><i>Diarrhoea, nausea, tanned skin (hyperpigmentation) and postural hypotension in a tired women points towards Addison's disease where hyponatraemia and hyperkalaemia are seen.</i></p> <p>Addison's disease</p> <p><i>Associated electrolyte abnormalities:</i></p> <ul style="list-style-type: none">• Hyperkalaemia• Hyponatraemia• Hypoglycaemia• Metabolic acidosis



	<p><i>It may be easier to think of the hormones that are involved:</i></p> <p><i>ACTH ↑ → hyperpigmentation</i></p> <p><i>Aldosterone ↓ → Na↓ → Hypotension</i> <i>→ K↑</i> <i>→ H↑ → Metabolic acidosis</i></p> <p><i>Cortisol ↓ → Arterial hypotension</i> <i>→ Hypoglycaemia</i></p>
55.	<p>A 45 year old man with diagnosed colon cancer develops increased thirst, and frequent urination. He is also noted to have been losing weight in the last couple of months. His blood test shows a fasting blood glucose of 9 mmol/L. He has a pulse of 70 beats/minute, a blood pressure of 125/80 mmHg and a respiratory rate of 18 breaths/minute. What is the SINGLE most appropriate management?</p> <p>A. Oral hypoglycaemic B. Long acting insulin C. Short acting insulin before meals D. IV insulin E. Subcutaneous insulin</p> <p><i>The diagnosis of diabetes is very clear here. An increased thirst and increased frequency in urination along with weight loss is suggestive of diabetes mellitus. The fasting blood glucose of 9 mmol/L supports the diagnosis of diabetes. At the age of 45, the most likely type of diabetes is type 2 diabetes mellitus. This is treated with oral hypoglycemic agents. The first line is usually metformin but this again depends on other factors such as the weight of the patient.</i></p> <p><i>Insulin can be used in type 2 diabetes as well. But it is used in combination with metformin or it is used in very sick patients with a high blood glucose (hyperosmolar hyperglycaemic state) often having a blood glucose level more than 40 mmol/L.</i></p> <p>Type 2 Diabetes Management</p> <ul style="list-style-type: none">• <i>Offer standard-release metformin as the initial drug treatment for adults with type 2 diabetes</i>• <i>If metformin is contra-indicated or not tolerated, consider initial drug treatment with a dipeptidyl peptidase-4 (DPP-4) inhibitor or pioglitazone or a sulfonylurea</i>



56.	<p>A newborn has congenital hypothyroidism. What feature might develop if no treatment is given?</p> <p>A. Microglossia B. Physiological jaundice C. Undescended testis D. Anal tags E. Left soft palate</p> <p><u><i>Congenital hypothyroidism</i></u></p> <p><i>Clinical features</i> <i>The following features are late sequelae of congenital hypothyroidism and, with routine screening now available, should never be seen nowadays.</i></p> <ul style="list-style-type: none">• <i>Physiological jaundice</i>• <i>Goitre</i>• <i>Delay in reaching normal milestones of development, short stature</i>• <i>Coarse features with protruding tongue, broad flat nose, widely set eyes</i>• <i>Sparse hair and dry skin</i>• <i>Impaired mental development</i>• <i>Epiphyseal dysgenesis, delayed dentition</i>
57.	<p>A 33 year old woman has amenorrhoea and galactorrhoea. An MRI shows a 9mm tumour in the pituitary fossa. What is SINGLE most appropriate management?</p> <p>A. Radiotherapy B. Cabergoline C. Craniotomy D. Transsphenoidal surgery E. Chemotherapy</p> <p><i>Drug treatment should always be tried first. Cabergoline is a dopamine agonist used in treatment of prolactinoma.</i></p> <p><i>Prolactinoma Management</i></p> <p><i>Drug therapy - dopamine agonists</i></p> <ul style="list-style-type: none">• <i>Suppresses prolactin in most patients, with secondary effects of normalization of gonadal function and terminates galactorrhoea</i>• <i>Shrinks tumours → by shrinking the tumour, restoration of other hormonal axes may occur</i>• <i>Corrects visual field defect by chiasmal decompression thus immediate surgical decompression is not necessary</i>• <i>Note: Cabergoline is more effective in normalization of prolactin in microprolactinoma compared to bromocriptine. It is also associated with fewer side effects than bromocriptine</i>



	<p>Surgery</p> <ul style="list-style-type: none">• <i>Since the introduction of dopamine agonist treatment, transsphenoidal surgery is indicated only for patients who are resistant to, or intolerant of, dopamine agonist treatment</i> <p>Radiotherapy</p> <ul style="list-style-type: none">• <i>Reduce the chance of recurrence (rarely needed)</i>
58.	<p>A 30 year old woman complains of decreased appetite and weight gain. She has been having irregular, infrequent periods in the last 10 months. She also feels tired and lethargic majority of the day. On inspection, she has a dry coarse skin. What is the SINGLE most likely diagnosis?</p> <p>A. Hypothyroidism B. Hyperthyroidism C. Polycystic ovary syndrome D. Addison's disease E. Premature ovary failure</p> <p>Hypothyroidism</p> <p>Primary hypothyroidism</p> <ul style="list-style-type: none">• <i>Autoimmune hypothyroidism - Hashimoto's thyroiditis (associated with a goitre) and atrophic thyroiditis.</i>• <i>Iatrogenic - radioiodine treatment, surgery, radiotherapy to the neck</i>• <i>Iodine deficiency - the most common cause worldwide and goitre is present (uncommon in UK)</i>• <i>Drugs - amiodarone, contrast media, iodides, lithium and antithyroid medication.</i>• <i>Congenital defects - e.g. absence of thyroid gland</i> <p>Secondary hypothyroidism</p> <ul style="list-style-type: none">• <i>Isolated TSH deficiency</i>• <i>Hypopituitarism - neoplasm, infiltrative, infection and radiotherapy</i>• <i>Hypothalamic disorders - neoplasms and trauma</i> <p>Symptoms</p> <ul style="list-style-type: none">• <i>Tiredness, lethargy, intolerance to cold</i>• <i>Dry skin and hair loss</i>• <i>Slowing of intellectual activity - eg, poor memory and difficulty concentrating.</i>• <i>Constipation</i>• <i>Decreased appetite with weight gain.</i>• <i>Menorrhagia and later oligomenorrhoea or amenorrhoea</i> <p>Signs</p> <ul style="list-style-type: none">• <i>Dry coarse skin, hair loss and cold peripheries</i>• <i>Puffy face, hands and feet (myxoedema)</i>



	<ul style="list-style-type: none">• <i>Bradycardia</i> <p><i>In autoimmune hypothyroidism, patients may have features of other autoimmune diseases, such as, vitiligo, pernicious anaemia, Addison's disease and diabetes mellitus.</i></p>
59.	<p>A 33 year old man has erectile dysfunction, decreased libido and galactorrhoea. What is the SINGLE most likely diagnosis?</p> <p>A. Hyperprolactinaemia B. Cushing's syndrome C. Pheochromocytoma D. Hyperthyroidism E. Hypoparathyroidism</p>
60.	<p>A 44 year old man is extremely thirsty despite excessive drinking. Diabetes mellitus and renal failure has been ruled out and a diagnosis of diabetes insipidus is suspected. Fluid deprivation test and an assessment of response to vasopressin was done which was consistent with central diabetes insipidus. What is the SINGLE most likely laboratory finding that lead to the conclusion?</p> <p>A. An increase in urine osmolality after administration of vasopressin B. A decrease in urine osmolality after administration of vasopressin C. An increase in plasma osmolality after administration of vasopressin D. A decrease in plasma osmolality during fluid deprivation E. An increase in urine osmolality during fluid deprivation</p> <p><i>In diabetes Insipidus, one can expect excess fluid loss with urine. Urine osmolality would be low and plasma osmolality would be high.</i></p> <p><i>After administration of vasopressin (desmopressin), an increase in urine osmolality is diagnostic for central (cranial) diabetes insipidus.</i></p> <p>Diabetes Insipidus</p> <p>Fluid deprivation test and assessment of response to vasopressin:</p> <ol style="list-style-type: none">1. Patient is then deprived of fluids2. Plasma osmolality is measured 4 hourly and urine volume and osmolality every 2 hours3. The patient is then given IM desmopressin with urine volume and urine and plasma osmolality measured over the next 4 hours. <p>Understanding the results</p>



	Normal patient	Diabetes insipidus	
	Fluid restriction causes a decrease in urine volume and an increase in urine osmolality	Despite fluid restriction, urine volume remains high and urine osmolality is decreased	
		Central Diabetes insipidus	Nephrogenic Diabetes insipidus
		Urine volume decreases and urine osmolality increases after administering desmopressin	There is no change after administering desmopressin

Plasma osmolality (mOsm/kg)
After fluid deprivation, If plasma osmolality >305, the patient has diabetes insipidus

Urine osmolality (mOsm/kg)

	Central Diabetes insipidus	Nephrogenic Diabetes insipidus
After fluid deprivation	<300	<300
After desmopressin	>800	<300

61.

A 38 year old lady was admitted with severe abdominal pain and diarrhoea. On examination, hyperpigmentation is noticed at the palmar creases and buccal mucosa. She has muscle cramps and joint pain. Her blood pressure is 79/50 mmHg. What is the SINGLE most likely diagnosis?

A. Addison's disease
B. Cushing syndrome
C. Pheochromocytoma
D. Hyperthyroidism
E. Hypoparathyroidism

The signs and symptoms are classic for Addison's disease. The hyperpigmentation alone should prompt you to pick addison's disease. This is supported by the symptoms of abdominal pain and diarrhoea. Muscle pain, joint pain and hypotension is also seen in Addison's disease. Sometimes they would give you a history of postural hypotension instead of hypotension.

Note that hyperpigmentation is especially noticeable in buccal mucosa, lips, palmar creases.

Adrenal Insufficiency

Primary insufficiency (Addison's disease)

- An inability of the adrenal glands to produce enough steroid hormones. The most common cause for this in the developed world is autoimmune disease.



	<p><u>Secondary insufficiency</u></p> <ul style="list-style-type: none">• Inadequate pituitary or hypothalamic stimulation of the adrenal glands. <p>Features</p> <ul style="list-style-type: none">• Nausea/vomiting• Abdominal pain• Diarrhoea/constipation• Weakness• Postural hypotension, dizzy• Hyperpigmentation (only for Addison's disease) <p>Think of adrenal insufficiency in all with unexplained abdominal pain or vomiting</p> <p>It is especially important to note for the exam that in secondary insufficiency, there is no hyperpigmentation of the skin as ACTH is decreased. Hyperpigmentation would only happen in primary insufficiency (Addison's disease) as the ACTH is extremely high.</p>
62.	<p>A 46 year old woman complains of tiredness and lethargy. She has noticed a 8 kg weight gain in the last 3 months and is feeling more sensitivity to cold. She has a pulse rate of 55 beats/minute. What is the SINGLE most likely diagnosis?</p> <p>A. Hypothyroidism B. Hyperthyroidism C. Cushing's syndrome D. Addison's disease E. Pheochromocytoma</p>
63.	<p>A 49 year old man with a diagnosis of squamous cell carcinoma of the lung is confused and lethargic. He is continuously thirsty and urinates frequently. His blood tests show:</p> <p>Serum calcium 3.2 mmol/l Serum potassium 4.5 mmol/l Serum sodium 149 mmol/l</p> <p>What is the SINGLE most appropriate initial step?</p> <p>A. Calcitonin B. IV calcium gluconate C. IV 0.9% saline D. IV bisphosphonates E. Steroids</p> <p>This patient is suffering from hypercalcaemia due to production of PTH like molecule (Squamous cell carcinoma of the lung). The first step in management is always rehydration with IV fluids.</p>



64.

A 34 year old woman is referred to the endocrine clinic with a history of thyrotoxicosis. At her first appointment she is found to have a smooth goiter, lid lag and bilateral exophthalmos with puffy eyelids. She wants to discuss the treatment of her thyroid problem as she is keen to become pregnant. What is the SINGLE most likely treatment to be given to her?

- A. Carbimazole alone
- B. Propylthiouracil alone**
- C. A combination of carbimazole and thyroxine
- D. Radioactive iodine
- E. Thyroidectomy

Of the three recognised treatment options for hyperthyroidism (radioiodine therapy, antithyroid drug therapy and surgery), generally only drug therapy (preferably propylthiouracil) is considered for treating pregnant women. As this patient is not yet pregnant but trying to conceive, there are no consensus on the treatment option. However, it is likely that propylthiouracil would be the preferred treatment as she has not attempted any anti-thyroid drug therapy in the past.

Both propylthiouracil (PTU) and carbimazole are effective in controlling the disease in pregnancy. Historically, propylthiouracil has been preferred in pregnancy because it is not associated with aplasia cutis and omphalocele, which may be the case for carbimazole. However, recent concern regarding hepatotoxicity of PTU, particularly in children, has led to recommendations that it should only be prescribed in the first trimester. Nonetheless, PTU is the drug of choice when trying to conceive (preconception) and also in the first three months of pregnancy. If PTU is not available, carbimazole can be used.

Surgical management is also something to consider and in a number of women planning to become pregnant, it is the therapy of choice. As stated above, there are no consensus to which management pathway should be used but it is likely that propylthiouracil would be attempted first before considerations of surgery. While subtotal or near total thyroidectomy achieves a 98% cure rate, it is indicated if there is suboptimal response to anti-thyroid medication or radio-iodine.

Anti-thyroid medication has a slight increased risk of baby developing structural abnormalities, so it is common for physicians to encourage patients to choose to have definitive treatment of Grave's disease with radioactive iodine or surgery before considering a pregnancy. But then again, a trial of anti-thyroid medication is likely to be attempted first.

It is also important to note that the patient has symptoms of Graves's ophthalmopathy of which radioactive iodine should not be used as part of the management. There is evidence that Graves's ophthalmopathy worsens after administration of radioactive iodine.

Pre-pregnancy counselling is also important. It should include informing the patient of the importance of euthyroidism before conception since uncontrolled hyperthyroidism is associated with an increased risk of congenital abnormalities.



	<p><i>If the patient was already pregnant, the decision to pick propylthiouracil becomes more clear. Also, points to note if the patient is pregnant are as follows:</i></p> <ul style="list-style-type: none">• <i>The use of iodides and radioiodine is contraindicated in pregnancy</i>• <i>Patient still needs to continue taking anti-thyroid medication during pregnancy</i><ul style="list-style-type: none">○ <i>As anti-thyroid medication is able to cross the placenta, the lowest possible dose should be prescribed</i>• <i>If already on carbimazole, change carbimazole to propylthiouracil</i>• <i>Thyroidectomy is rarely performed in pregnancy</i><ul style="list-style-type: none">○ <i>It is reserved for patients not responding to anti-thyroid medication</i>○ <i>If necessary, it is preferable to perform thyroidectomy in the second trimester</i>
65.	<p>A 28 year old woman complains of tiredness, lethargy, and intolerance to cold. She has a history of Addison's disease. Her skin looks dry on examination. She has been having infrequent periods in the one year and her last menstrual period was 3 months ago. What is the SINGLE most likely diagnosis?</p> <p>A. Polycystic ovary syndrome B. Hyperthyroidism C. Hypothyroidism D. Addison's disease E. Premature ovary failure</p>
66.	<p>A 31 year old man has tremors, profuse sweating and palpitations. His blood pressure was measured at 160/115 mmHg but dropped to 139/92 on standing. What is the SINGLE most likely diagnosis?</p> <p>A. Hyperthyroidism B. Panic attacks C. Essential hypertension D. Pheochromocytoma E. Generalized anxiety disorder</p> <p>Postural hypotension is defined as a reduction in systolic blood pressure of 20mmHg or more after standing for at least one minute. Postural hypotension can be seen in phaeochromocytoma.</p>
67.	<p>A 56 year old man was recently started on antihypertensive medication. His recent blood results show:</p> <p>Sodium 134 mmol/L Potassium 5.9 mmol/L Urea 7 mmol/L Creatinine 111 µmol/L</p> <p>What is the SINGLE most likely medication responsible for the abnormal results?</p>



	<p>A. Amlodipine B. Bendroflumethiazide C. Doxazosin D. Atenolol E. Ramipril</p> <p>Ramipril is an ACE inhibitor. ACE inhibitors are known for their effects of hyperkalaemia.</p>
68.	<p>A 39 year old man has galactorrhoea. On examination of his visual fields, a bitemporal hemianopia was noted. What is the SINGLE most likely diagnosis?</p> <p>A. Hyperprolactinaemia B. Cushing's syndrome C. Pheochromocytoma D. Hyperthyroidism E. Hypoparathyroidism</p>
69.	<p>A 29 year old male comes to clinic with a swollen, painful right wrist joints. On further questioning, he gives a history of noticing a change in his shoe size. His other complains also include constipation, feeling cold and needing more warm clothes to keep him warm. On examination, his skin is found to be dry and his right wrist is erythematous and tender to touch. What is the SINGLE most likely diagnosis?</p> <p>A. Chondrosarcoma B. Liposarcoma C. Gout D. Pseudogout E. Ankylosing spondylitis</p> <p><i>This is a two part question.</i></p> <p><i>The first part is recognising the symptoms of hypothyroidism. The change of shoe size is probably due to myxoedema. The other features given like constipation, cold intolerance and dry skin are features seen in hypothyroidism.</i></p> <p><i>The second part is recognising that pseudogout may be precipitated by hypothyroidism. This explains the swollen wrist joint.</i></p> <p><i>Pseudogout may have an acute presentation like gout. It may also present in an asymptomatic and chronic form. The knee is the most commonly affected joint. The other joints commonly affected are the wrist, shoulder, and ankle. Presentation is similar (but usually milder) to acute gout, with acute joint pain and swelling. Attacks may be associated with fever and a raised white cell count.</i></p>



	<p><i>Positive birefringent crystals in synovial fluid evaluation are pathognomonic for acute pseudogout.</i></p>
70.	<p>A 33 year old man comes to clinic to have an oral glucose tolerance test. What is the plasma glucose level two-hours after glucose intake which indicates an impaired glucose tolerance?</p> <p>A. >11.1 mmol/L B. >11.0 mmol/L C. Between 8.0-10.9 mmol/L D. Between 7.8-11.1 mmol/L E. Between 7.1-11.1 mmol/L</p> <p>Impaired glucose tolerance is defined as a fasting plasma glucose concentration of less than 7.0 mmol/L with a two-hour oral glucose tolerance test value of 7.8 to 11.1 mmol/L</p>
71.	<p>A 35 year old man with a medical history of type 1 diabetes mellitus presents to the hospital with reduced conscious level and feeling unwell. He has dry mucous membranes and a slow capillary refill. He has a blood pressure of 80/50 mmHg and a pulse rate of 105 beats/minute. What is the SINGLE most appropriate initial investigation?</p> <p>A. Arterial blood gas B. Full blood count C. HbA1c D. Liver function tests E. Serum urea</p> <p><i>SAMPLE</i></p> <p><i>Signs of dehydration, hypotension, tachycardia with a medical history of type 1 diabetes mellitus points towards a likely diagnosis of diabetic ketoacidosis. In reality, diabetic ketoacidosis should be part of the differential in anyone with diabetes who is unwell.</i></p> <p><i>From the given options, arterial blood gas is the best response as it would help the medics know the severity of the DKA. If capillary blood glucose was in the options, this would take priority over the other investigations as it is quick and helps us with the differential.</i></p> <p>Diabetic ketoacidosis <i>Characterised by hyperglycaemia, acidosis and ketonaemia May be a complication existing type 1 diabetes mellitus or be the first presentation</i></p> <p>Precipitating factors <i>The most common are:</i></p> <ul style="list-style-type: none">• Infection• Missed insulin doses• Cardiovascular disease (e.g. stroke or myocardial infarction) <p>Features</p> <ul style="list-style-type: none">• Polyuria, polydipsia, dehydration, vomiting



	<ul style="list-style-type: none">• Abdominal pain• Kussmaul respiration (deep hyperventilation)• Acetone-smelling breath ('pear drops' smell)• If severe → altered mental state, including coma <p>Diagnosis</p> <ul style="list-style-type: none">• Glucose > 11 or known diabetic• pH < 7.3• Bicarb < 15• Ketones > 3 or urine dipstick ketones ++ <p>Management</p> <ul style="list-style-type: none">• The most important initial intervention is appropriate fluid replacement followed by insulin administration.• When plasma glucose is below 12 mmol/L then replace normal saline with 5% dextrose to prevent over-rapid correction of blood glucose and hypoglycaemia.• Hypokalaemia may need to be corrected with KCL
72.	<p>A 29 year old known diabetic man comes to A&E after falling down the stairs. While waiting in the waiting room, he becomes unconscious and collapses. What is the SINGLE most appropriate initial investigation?</p> <p>A. Computed tomography scan B. Random blood sugar C. Magnetic resonance imaging D. Electrocardiogram E. Arterial blood gas</p> <p><i>A random blood sugar is the first investigation to do. In an unconsciousness patient especially a diabetic, ruling out hypoglycaemia has to be treated as priority. It is easy and fast to perform.</i></p>
73.	<p>A 68 year old woman was diagnosed with Type 2 Diabetes Mellitus. Diet and lifestyle modifications have failed to control his blood sugar over the last three months. She has no known allergies and takes Ramipril 5mg daily. She has a body mass index is 35 kg/m². Her blood results are as follows:</p> <p>Serum urea 13.2 mmol/L Creatinine 390 mmol/L eGFR 25 ml/min</p> <p>What is the SINGLE most appropriate pharmacological management?</p> <p>A. Biguanide B. Sulfonylurea C. Insulin D. Glitazone E. Sodium glucose co-transporter 2 (SGLT2) inhibitors</p>



	<p><i>NICE recommends biguanide (such as Metformin) as first line treatment for patients with type 2 diabetes unless this is contraindicated. This patient is obese and has poor renal function, hence biguanides, sulfonylurea and sodium glucose co-transporter 2 inhibitors are contraindicated. Pioglitazone causes weight gain so this is not an appropriate option as well.</i></p>
74.	<p>A 65 year old man with a body mass index is 33 kg/m² has been diagnosed with Type 2 diabetes mellitus. Diet and lifestyle modifications have failed to control his blood sugar over the last three months. He has no known allergies and does not take any regular medications. His blood results are as follows:</p> <p>Serum urea 3.6mmol/L Creatinine 82 mmol/L eGFR 79 ml/min</p> <p>What is the SINGLE most appropriate pharmacological management?</p> <p>A. Biguanide B. Sulfonylurea C. Sodium glucose co-transporter 2 (SGLT2) inhibitors D. Glitazone E. Incretin mimetics</p>
75.	<p>A 75 year old man with a recent diagnosis of prostate cancer has confusion, thirst, lower back pain and abdominal pain. An ECG was performed which showed shortening of QT interval. What is the SINGLE most appropriate investigation?</p> <p>A. Magnetic resonance imaging spine B. Radionuclide bone scan C. DEXA scan D. Serum alkaline phosphatase E. Serum calcium</p> <p><i>It is clear from the clinical features that this man is suffering from hypercalcaemia. Prostate cancer is typically associated with metastatic osteoblastic lesions, hypocalcemia and hypophosphatemia. Although, hypercalcemia is sometimes encountered like in this case.</i></p> <p><i>Prostate cancer cells in a bone may make extra calcium pass out of the damaged bone and into the blood. Hypercalcaemia explains the symptoms in this stem of confusion, thirst because of polyuria and abdominal pain. The back pain seen in this stem is due to metastatic bone disease.</i></p> <p><i>As there are no symptoms of tingling or numbness in the legs in this stem, there is no rush to perform a magnetic resonance imaging of the spine to investigate for malignant spinal cord compression. Obtaining a serum calcium would be the most appropriate since ECG changes are already seen and hypercalcaemia would need to be treated as soon as possible.</i></p>



	<p>Remember the clinical features of hypercalcemia:</p> <p>Clinical features</p> <p>Mnemonic: "moans, stones, groans, and bones".</p> <ul style="list-style-type: none">• <i>Neuro and psych: Hypercalcemia results in decreased mental activity leading to lethargy, confusion and depression (Groans)</i>• <i>Gastrointestinal: Hypercalcemia results in decreased bowel activity such as constipation (Moans)</i>• <i>Renal: Hypercalcemia results in polyuria and polydipsia because of the induction of nephrogenic diabetes insipidus. Calcium also precipitates in the kidney, resulting in both kidney stones as well as nephrolithiasis. (Stones)</i>• <i>Bone pain is only seen when it is hyperparathyroidism which is causing hypercalcaemia (Bones)</i>• <i>Cardiovascular: The ECG shows a short QT</i>
76.	<p>A 79 year old man has a diagnosis of lung cancer. He has a sodium level of 122 mmol/l but remains asymptomatic for hyponatraemia. What is the SINGLE most appropriate management?</p> <p>A. Demeclocycline B. Vasopressin C. Fluid restriction D. Reassure E. Tolvaptan</p> <p><i>This man is suffering from effects of syndrome of inappropriate antidiuretic hormone secretion (SIADH) which is leading to his hyponatraemia. One of the causes of SIADH is small cell lung cancer.</i></p> <p><i>Treat the cause of SIADH and restriction of fluid is the mainstay management for majority of cases of SIADH. Consider Tolvaptan or demeclocycline if poor response after fluid restriction.</i></p>
77.	<p>A 32 year old man has recently had an appendectomy performed. His post-op blood results return with the following values:</p> <p>Glucose 4.5 mmol/L Sodium 129 mmol/L Potassium 5.3 mmol/L</p> <p>What is the SINGLE most appropriate management?</p> <p>A. Sodium chloride 0.9% intravenous infusion B. Sodium chloride 0.45% intravenous infusion C. Insulin-glucose intravenous infusion D. Nebulised salbutamol</p>



	<p>E. Sodium bicarbonate</p> <p><i>There is mild hyponatremia with normal to mild hyperkalaemia. Glucose is within normal levels. The range for "normal" potassium differs among laboratories but they are usually between 3.5-5.0 mmol/l. There is no universal definition of hyperkalemia but a serum potassium above 5.5mmol/l is widely used.</i></p> <p><i>It is worth knowing the contents of sodium chloride 0.9%. One litre of sodium chloride 0.9% contains:</i></p> <ul style="list-style-type: none">• 154 mEq of sodium ion = 154 mmol/L• 154 mEq of chloride ion = 154 mmol/L <p><i>Thus, sodium chloride 0.9% intravenous infusion can be used to treat sodium depletion and in this case it will correct the electrolyte disbalance. Potassium levels will also be brought down slightly with sodium chloride 0.9% intravenous infusion.</i></p> <p><i>Nebulised salbutamol, insulin-glucose intravenous infusion and sodium bicarbonate are used in the management of moderate to severe hyperkalaemia (usually with potassium values ranging from above 6 mmol/L)</i></p>
78.	<p>A 41 year old obese women has recently undergone a blood test. Her results show:</p> <p>Fasting blood sugar 6 mmol/l Oral glucose tolerance test 10.1 mmol/l.</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Impaired glucose tolerance B. Diabetes insipidus C. Type 1 diabetes mellitus D. Type 2 diabetes mellitus E. Maturity onset diabetes of the young</p> <p><i>Impaired glucose tolerance is defined as a fasting plasma glucose concentration of less than 7.0 mmol/L with a two-hour oral glucose tolerance test value of 7.8 to 11.1 mmol/L.</i></p>
79.	<p>A 21 year old man is brought into A&E semi-conscious by his friends. They were at a party and have been drinking alcohol when they found him unconscious in a corner. He is groaning and unable to give any information to the doctors. During the initial evaluation, his respiratory rate is 17/min and pulse rate is 88 bpm, BP is 110/70 mmHg, pupils are responsive. His Glasgow Coma Scale (GCS) score is 11/15. What is the SINGLE most appropriate next course of action?</p> <p>A. Computed tomography of head B. Magnetic resonance imaging of head C. Check blood glucose D. Check Body temperature</p>



E. Intravenous fluids

Alcohol intoxication can cause hypoglycaemia which presentations include a coma. Check venous or capillary blood with glucose oxidase strip would be an appropriate first step before taking him for a CT scan or any other investigation. It is fast, easy and if hypoglycaemia is the cause, it can be quickly reversible.

Hypoglycaemia

Always exclude hypoglycaemia in any patient with coma, altered behaviour, neurological symptoms, or signs.

Causes

- *Commonest cause is a relative imbalance of administered versus required insulin or oral hypoglycaemic drug. This results from:*
 - *Exercise*
 - *Insufficient or delayed food intake*
 - *Excessive insulin administration*

Other causes are:

- *Alcohol (in addition to alcohol directly causing hypoglycaemia, the features of hypoglycaemia may be mistaken for alcohol intoxication or withdrawal)*
- *Addison's disease*
- *Insulinomas*
- *Liver failure*
- *Malaria*

Common features:

Plasma glucose is normally maintained at 3.6-5.8mmol/L. Cognitive function deteriorates at levels < 3.0mmol/L, but symptoms are uncommon >2.5mmol/L.

- *Sweating*
- *Pallor*
- *Tachycardia*
- *Palpitations*
- *Hunger*
- *Trembling*
- *Altered or loss of consciousness*
- *Fitting*
- *Coma*

Diagnosis:

- *Venous or capillary blood with glucose oxidase strip (BMG)*
- *If < 3.0mmol/L, take a venous sample for a formal blood glucose level, but do not delay treatment*



80. A 22 year old footballer collapses during a game and is brought into A&E by ambulance. During the initial evaluation, his respiratory rate is 14/min and pulse rate is 84 bpm, BP is 115/80 mmHg. He is sweating profusely and muttering incomprehensible words. What is the SINGLE most appropriate next course of action?

- A. Computed tomography of head
- B. Magnetic resonance imaging of head
- C. Check blood glucose**
- D. Intravenous insulin
- E. Intravenous fluids

The collapse could be due to hypoglycaemia. Check venous or capillary blood with glucose oxidase strip would be an appropriate first step before taking him for a CT scan or any other investigation. It is fast, easy and if hypoglycaemia is the cause, it can be quickly reversible.

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- *Pallor*
- *Tachycardia*
- *Palpitations*
- *Hunger*
- *Trembling*
- *Altered or loss of consciousness*



	<ul style="list-style-type: none">• Fitting• Coma <p>Diagnosis:</p> <ul style="list-style-type: none">• Venous or capillary blood with glucose oxidase strip (BMG)• If < 3.0mmol/L, take a venous sample for a formal blood glucose level, but do not delay treatment
81.	<p>A 58 year old man who is known to have diabetes mellitus presents to the hospital with drowsiness, blurred vision, tremors, fatigue and confusion. On examination, he is excessive sweaty. Which SINGLE investigations should be done initially to help with further management?</p> <p>A. Fasting blood sugar B. Blood glucose C. Standing and lying blood pressure D. Electrocardiogram E. Computed tomography of head</p> <p><i>It is clear in this question that this man is having a hypoglycaemic episode. This could be caused by a missed meal or increased activity. The first step should be attaining blood sugars. This does not need to be fasting blood sugars.</i></p>
82.	<p>A 29 year old smoker presents with dry eyes and diplopia. On examination, she has lid lag and lid retraction bilaterally. What is the SINGLE most appropriate next step?</p> <p>A. Thyroid Function Tests B. Tensilon test C. Fundoscopy D. Autoantibodies E. Electromyography</p> <p><i>Although there is no mention of a goitre or symptoms of hyperthyroidism, it is clear that she has eye manifestations of Grave's disease. Thyroid function test would be the most appropriate next step.</i></p> <p><i>Autoantibodies would generally be ordered when taking blood for the thyroid function test in reality when suspecting Grave's disease. But if you were to pick a thyroid function test or autoantibodies, you would pick a thyroid function test as it is more sensitive and can guide you with your management.</i></p>
83.	<p>A 44 year old lady has just recovered from an upper respiratory tract infection. She feels her heart racing and has increased perspiration. Her blood tests show:</p> <p>Free thyroxine (T4) 48 pmol/L Free triiodothyronine (T3) 15 pmol/L</p>



	<p>Thyroid stimulating hormone (TSH) 0.1 mU/L Thyroid antibodies negative</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Hashimoto's thyroiditis B. Graves' disease C. Subacute thyroiditis D. Toxic nodular goitre E. Sick euthyroid syndrome</p> <p><i>The patient has features of hyperthyroidism. Her T3 and T4 levels are high and her TSH levels are low.</i></p> <p><i>In subacute thyroiditis, patients will experience a hyperthyroid period which is typically followed by a hypothyroid phase as the pituitary reduces TSH production before resolving to euthyroid. Hence, the symptoms are those of hyperthyroidism and hypothyroidism.</i></p> <p><i>There will be an initial elevation in T3 and T4 in serum which is caused by leak of hormones from the thyroid gland, followed by hypothyroidism as the it gets depleted.</i></p> <p><i>This stem includes having a history of upper respiratory tract infections because subacute thyroiditis are usually viral in origin, usually preceding an upper respiratory tract infection.</i></p> <p><i>Subacute thyroiditis is usually self-limited and is not treated with radioiodine.</i></p>
84.	<p>A 4 year old child is brought to the emergency department by his mother with complains of vomiting for the past 4 days. On examination, he has clinical signs of mild to moderate dehydration. What is his arterial blood gas profile likely to show?</p> <p>A. A low pH and low PCO₂ B. A low pH and high PCO₂ C. A high pH and low PCO₂ D. A high pH and high PCO₂ E. A high pH and normal PCO₂</p> <p><i>Prolonged vomiting causes loss of H⁺ from the body resulting in metabolic alkalosis. Thus, pH will be higher than usual. To compensate for metabolic alkalosis, the respiratory system will retain carbon dioxide through slower breathing or alveolar hypoventilation in attempts to diminish the change in pH that would otherwise occur. This would result in a higher PCO₂.</i></p>
85.	<p>A 62 year old man had a bowel resection 3 days ago for colorectal cancer. His urine output has been low since the procedure and he is now becoming breathless. He has a blood pressure of 130/95 mmHg. On auscultation, he has crackles at both lung bases and on palpation, he has sacral oedema. His blood tests show:</p>



Haemoglobin 109 g/L
Serum urea 50.5 mmol/L
Serum creatinine 603 μ mol/L
Serum potassium 6.72 mmol/l

What is the SINGLE most appropriate immediate management?

- A. Bolus of 20 units of insulin
- B. Calcium resonium
- C. Sodium bicarbonate
- D. Intravenous fluid
- E. 10 units of insulin and 50 ml of 50% glucose infusion**

The most significant point to highlight in this case is his potassium levels. His potassium levels are high enough to cause a life-threatening arrhythmia. The high levels of potassium could be due to many reasons but it is likely that he is suffering from acute kidney injury due to heart failure causing low blood volumes.

The hyperkalaemia needs to be addressed first to prevent cardiac arrest.

Shifting potassium intracellularly is a useful holding measure in life threatening hyperkalaemia. This can be done quickly by administering Insulin Actrapid® 10 units in 50 mL of Glucose 50% intravenously over 30 minutes via a volumetric pump. Insulin stimulates cellular uptake of potassium, so it drops serum potassium levels rapidly, and glucose is given with insulin to prevent hypoglycemia. This would reduce serum potassium levels by 0.65 - 1.0mmol/L but the reduction only last for about an hour. This is usually followed by monitoring blood glucose after 15 minutes, 30 minutes and then hourly for up to 6 hours as there is a risk of late hypoglycaemia. Again this regimen would differ depending on your local hospital guideline for hyperkalaemia. Just remember that capillary blood glucose needs to be checked before, during and after insulin-glucose infusion.

Other methods that can be used to treat life threatening hyperkalaemia include:

- 10-20 mg nebulised salbutamol - this reduces serum potassium (0.5-1.0 mmol/L) in 15-30 minutes and lasts for two hours

It is also important to check potassium 30 minutes afterwards and if there is a good response, check U&E 1-2 hours later.

It is important to remember that shifting potassium intracellularly to treat life threatening hyperkalaemia does not reduce total body potassium, and after two to six hours, there is an efflux of potassium back out into the extracellular space resulting in serum levels as high or sometimes even higher than at the outset.

Therefore, any of the steps mentioned must be combined with attempting to reduce total body potassium. This can be done by:

- Avoiding medications which can raise potassium
- Promote urinary potassium loss



- Intravenous normal saline as long as the patient is not significantly overloaded (In this stem, you would not be giving IV fluids as he has heart failure and is clearly fluid overloaded given his clinical features of crackles at both lung bases and sacral oedema on palpation)
- If well hydrated consider starting or increasing the dose of a loop diuretic.
- Remove excess potassium
 - Calcium Resonium® has a slow onset of action (at least 2-6 hours) (This is the reason it is not the answer in this question. The action to correct hyperkalaemia is too slow. Calcium Resonium® has no role in an acute situation)
- Dialysis
 - This is useful if all the above measures have been done and the patient still has high serum potassium
 - Note: Dialysis is also likely to be needed if potassium is very high (>7.5 mmol/L) or patient is oligo or anuric. In this question, if dialysis was present, it would be a better option to pick rather than insulin-glucose infusion because this patient is having acute renal failure and is anuric. If haemodialysis is performed within 15-30 minutes then treatments to move potassium into cells are unlikely to be helpful and may make potassium removal on dialysis more difficult.

Sodium bicarbonate may be useful in the setting of resistant hyperkalaemia with acidosis. It should only be considered if pH is < 7.2 . The use of sodium bicarbonate is controversial in patients with acidosis and there is still insufficient evidence to justify routine use. It is therefore likely to always be the **WRONG** answer in the PLAB part 1 test in the context of hyperkalaemia.

If intravenous **calcium gluconate** was in one of the options, that would also be a correct answer because it is needed to stabilise the cardiac membrane to prevent arrhythmias. Intravenous calcium has rapid effects, resulting in improvement of ECG abnormalities within minutes of administration.



SAMPLE



EAR, NOSE & THROAT

SAMPLE



1.	<p>A 25 year old woman complains of dizziness, nausea, and anxiety which keeps coming from time to time. She notices that the attacks are associated with sudden change in posture and these episodes last only a few seconds. What is the SINGLE most likely diagnosis?</p> <p>A. Panic disorder B. Carotid sinus syncope C. Benign paroxysmal positional vertigo D. Vertebrobasilar insufficiency E. Postural hypotension</p> <p>Benign paroxysmal positional vertigo is one of the most common causes of vertigo encountered. It is characterised by the sudden onset of dizziness and vertigo triggered by changes in head position.</p> <p>Presentation:</p> <ul style="list-style-type: none">• Can be preceded by infections• Vertigo on turning over in bed, lying down, or sitting up from supine position• each episode typically lasts 10-20 seconds <p>Diagnosis:</p> <ul style="list-style-type: none">• Hallpike's Manoeuvre positive <p>Treatment:</p> <ul style="list-style-type: none">• Mostly spontaneous resolution with exacerbations
2.	<p>A 29 year old teacher had a respiratory infection for which she was prescribed antibiotics. A few days after she finished the antibiotic course, she rejoins school but she has a weak, altered voice which was not present previously. What is the SINGLE most appropriate diagnosis?</p> <p>A. Recurrent laryngeal nerve palsy B. Angioedema C. Laryngeal obstruction D. Laryngitis E. Functional dysphonia</p> <p>Functional dysphonia refers to a voice disturbance that occurs in the absence of any structural abnormality of the larynx or any cord paralysis. It is a diagnosis of exclusion.</p> <p>Symptoms include vocal fatigue (voice becoming worse with use) and laryngeal discomfort. There may be various interacting causes, such as heavy demands on the voice, poor vocal technique and stress.</p> <p>The case given above gives a history of voice overuse. This is a common problem in some occupations such as acting and teaching. It may also follow unaccustomed voice use, such as shouting at a football match. Vocal strain may be exacerbated when attempting to</p>



	<p>compensate for an acute respiratory infection. Given that there is no option to pick voice overuse and since there is no structural or neurological pathology, functional dysphonia is the best option.</p> <p>Recurrent laryngeal nerve palsy mainly presents with voice changes as well but there is usually an obvious cause like trauma during surgery (especially thyroid surgery), tumour spread, bulbar palsy, or penetrating wounds none of which was mentioned in this stem.</p> <p>Angioedema in severe cases can cause hoarseness but it also presents with difficulty in breathing which is not the case here.</p> <p>Laryngeal obstruction like angioedema would have difficulty in breathing.</p> <p>Laryngitis would have been the best option provided that the hoarseness of voice occurred during the respiratory infection prior to treatment. Since the hoarseness of voice occurred post treatment, it is unlikely to be laryngitis.</p>
3.	<p>A 45 year old man presents with progressive hoarseness. He has swollen vocal cords. He has a body mass index is 34 kg/m² and he smokes 20 cigarettes a day. He also drinks 2 pints of beer a day. He has been suffering from heartburn since he was mid twenties. His diet involves eating large amounts of red meat. Investigations reveal that he has laryngeal cancer. What is the SINGLE most likely cause of his cancer?</p> <p>A. Diet B. High BMI C. Alcohol abuse D. Gastro-oesophageal reflux disease E. Smoking</p> <p>Chronic hoarseness is the most common early symptom of laryngeal cancer. The typical patient would be an elderly male patient who smokes and presents with progressive hoarseness, then stridor, difficulty or pain on swallowing. Later with haemoptysis and ear pain if the pharynx is involved.</p> <p>While it is true that alcohol is a risk factor for laryngeal cancer, smoking is the main avoidable risk factor and is known to be the number one cause of laryngeal cancers in the UK.</p> <p>Risk factors</p> <ul style="list-style-type: none">• Smoking is the main avoidable risk factor for laryngeal cancer, linked to an estimated 79% of laryngeal cancer cases in the UK.• Certain occupational exposures (asbestos, formaldehyde, nickel, isopropyl alcohol and sulphuric acid mist) can also cause laryngeal cancer.• Insufficient fruit and vegetables intake is linked to an estimated 45% of laryngeal cancer cases in the UK.• Human papillomavirus type 16 (HPV16) seropositivity is associated with an increased risk of oral, pharyngeal and laryngeal cancer.



4.	<p>A 26 year old woman has become aware of an increasing right sided hearing loss since her last pregnancy. On otoscopy, her eardrums look normal. Her hearing tests shows bone conduction (BC) is better than air conduction (AC) in the right ear. Weber's test lateralizes to the right ear. What is the SINGLE most likely diagnosis?</p> <p>A. Encephalopathy B. Functional hearing loss C. Tympanosclerosis D. Otosclerosis E. Sensorineural deafness</p> <p>Weber's test lateralized to the right and bone conduction is better than air conduction on the right. This clearly shows a conductive deafness on the right. There are no features of encephalopathy. Tympanosclerosis has characteristic chalky white patches seen on inspection of the eardrum. Since the eardrum here was viewed as normal, it is unlikely to be tympanosclerosis.</p> <p>The only answer left would be otosclerosis. Bone and air conduction must be tested and in otosclerosis it typically reveals a purely conductive, predominantly low-tone loss.</p> <p>Rinne's and Weber's test</p> <p>Performing both Rinne's and Weber's test allows differentiation of conductive and sensorineural deafness.</p> <p><u>Rinne's test</u></p> <p>A tuning fork is placed over the mastoid process until the sound is no longer heard, followed by repositioning just over external acoustic meatus</p> <ul style="list-style-type: none">• Note that air conduction (AC) is normally better than bone conduction (BC) (Positive Rinne's test)• If $BC > AC$, then the patient has conductive deafness (Negative Rinne's test) (Abnormal Rinne's test) <p>Note that the words positive and negative are used in a somewhat confusing fashion here, as compared to their normal use in medical tests. Positive or negative in this case means that a certain parameter that was evaluated was present or not. In this case, that parameter is whether air conduction (AC) is better than bone conduction (BC). Thus, a "positive" result indicates the healthy state, in contrast to many other medical tests. Therefore, some prefer to avoid using the term 'positive' or 'negative', and simply state if the test was normal or abnormal e.g. 'Rinne's test was abnormal in the right ear, with bone conduction greater than air conduction'.</p> <p><u>Weber's test</u></p> <p>A tuning fork is placed in the middle of the forehead equidistant from the patient's ears. The patient is then asked which side is loudest</p> <ul style="list-style-type: none">• If sound is localised to the unaffected side, then this is unilateral sensorineural deafness
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	<ul style="list-style-type: none">If sound is localised to the affected side, then this is unilateral conductive deafness <p><u>Example</u></p> <p>If Weber's test localises to the right side. It can either be right conductive deafness OR left sensorineural deafness. A Rinne's test would be able to confirm if it is a right conductive deafness.</p>
5.	<p>A 47 year old man has difficulty hearing on his right ear. Air conduction (AC) is better than bone conduction in both ears. The sound was localised towards the left side on Weber's test. What is the SINGLE most likely diagnosis?</p> <p>A. Right sensorineural deafness B. Left sensorineural deafness C. Right conductive deafness D. Left conductive deafness E. Bilateral sensorineural deafness</p> <p>Rinne's and Weber's test</p> <p>Performing both Rinne's and Weber's test allows differentiation of conductive and sensorineural deafness.</p> <p><u>Rinne's test</u></p> <p>A tuning fork is placed over the mastoid process until the sound is no longer heard, followed by repositioning just over external acoustic meatus</p> <ul style="list-style-type: none">Note that air conduction (AC) is normally better than bone conduction (BC) (Positive Rinne's test)If $BC > AC$, then the patient has conductive deafness (Negative Rinne's test) (Abnormal Rinne's test) <p>Note that the words positive and negative are used in a somewhat confusing fashion here, as compared to their normal use in medical tests. Positive or negative in this case means that a certain parameter that was evaluated was present or not. In this case, that parameter is whether air conduction (AC) is better than bone conduction (BC). Thus, a "positive" result indicates the healthy state, in contrast to many other medical tests. Therefore, some prefer to avoid using the term 'positive' or 'negative', and simply state if the test was normal or abnormal e.g. 'Rinne's test was abnormal in the right ear, with bone conduction greater than air conduction'.</p> <p><u>Weber's test</u></p> <p>A tuning fork is placed in the middle of the forehead equidistant from the patient's ears. The patient is then asked which side is loudest</p> <ul style="list-style-type: none">If sound is localised to the unaffected side, then this is unilateral sensorineural deafnessIf sound is localised to the affected side, then this is unilateral conductive deafness <p><u>Example</u></p>



	<p>If Weber's test localises to the right side. It can either be right conductive deafness OR left sensorineural deafness. A Rinne's test would be able to confirm if it is a right conductive deafness.</p>
6.	<p>A 15 year old boy injured his right ear during a rugby match. He reports pain around the right pinna. On examination, the pinna of the right ear is red and tender. The tympanic membrane was found to be normal. What is the SINGLE most appropriate next step?</p> <p>A. Topical gentamicin B. Oral flucloxacillin C. Intravenous flucloxacillin D. Refer to ENT specialist E. No further intervention needed</p> <p>No further intervention is needed as the tympanic membrane is normal. This is a transient inflammation of the pinna from an injury during a hit in a rugby match. It is self limiting and of no worry.</p>
7.	<p>A 30 year old woman presents with sudden onset of severe vertigo. She has a 4 week history of intermittent dizziness. These episodes typically occur when she suddenly moves her head or rolls in bed and are characterised by the sensation that the room is 'spinning'. Most attacks last a few seconds. Neurological examination is unremarkable. What is the SINGLE most likely diagnosis?</p> <p>A. Benign paroxysmal positional vertigo B. Meniere disease C. Postural hypotension D. Psychogenic vertigo E. Viral labyrinthitis</p> <p>Benign paroxysmal positional vertigo (BPPV) Benign paroxysmal positional vertigo (BPPV) is the most common cause of vertigo which is experienced as the illusion of movement. The symptoms of vertigo only last a few seconds or minutes. It is often related to head movements.</p> <p>Note that there are no associated symptoms.</p> <p>The Dix-Hallpike test is used to confirm posterior canal BPPV. It is a simple test which can recreate the symptoms.</p> <p>Management</p> <ul style="list-style-type: none">• Epley's manoeuvre is the most widely used repositioning manoeuvre for BPPV. The idea is to attempt to reposition the crystals in the semicircular canals• The natural history for BPPV is for spontaneous remission



8.	<p>A 37 year old man has unilateral hearing loss on the right with tinnitus and balance disturbances. He complains of a feeling that his ear is plugged. He is also noted to have impaired facial sensation on that same side, What is the SINGLE most appropriate investigations to perform?</p> <p>A. Audiometry B. Computed tomography of brain C. Magnetic resonance imaging of brain D. Tympanometry E. Weber's test</p> <p>Hearing loss, tinnitus, vertigo points towards an affected Vestibulocochlear nerve. Numbness of the face points towards a trigeminal nerve involvement. Acoustic neuroma could account for these set of symptoms in which case MRI would be the investigation of choice.</p> <p>Acoustic neuroma Acoustic neuromas (more correctly called vestibular schwannomas) account for approximately five percent of intracranial tumours and 90 percent of cerebellopontine angle. It causes problems by having local pressure and behaving as a space-occupying lesion.</p> <p>Features can be predicted by the affected cranial nerves</p> <ul style="list-style-type: none">• Cranial nerve VIII: hearing loss (sensorineural deafness), vertigo, tinnitus• Cranial nerve V: absent corneal reflex• Cranial nerve VII: facial palsy <p>Bilateral acoustic neuromas are seen in neurofibromatosis type 2</p> <p>Investigation</p> <ul style="list-style-type: none">• MRI of the cerebellopontine angle is the investigation of choice
9.	<p>A 4 year old girl has a painful right ear. She is irritable and has been crying and coughing. She has a temperature of 38.8°C. Otoscopy reveals bulging of the tympanic membrane which appears red. What is the SINGLE most likely diagnosis?</p> <p>A. Acute otitis media B. Herpetic infection of the ear C. Referred pain from teeth D. Perforation of the eardrum E. Otitis externa</p> <p>Acute otitis media in children Acute otitis media is acute inflammation of the middle ear and may be caused by bacteria or viruses.</p> <p>Features</p> <ul style="list-style-type: none">• Rapid onset of pain (younger children may pull at the ear)• Fever



	<ul style="list-style-type: none">• Irritability• Coryza• Vomiting• Often after a viral upper respiratory infection• A red, yellow or cloudy tympanic membrane or bulging of the tympanic membrane.• An air-fluid level behind the tympanic membrane• Discharge in the auditory canal secondary to perforation of the tympanic membrane• Perforation of the eardrum often relieves pain. This is because bulging of the tympanic membrane causes the pain.
10.	<p>A 41 year old man presents with longstanding foul smelling brown ear discharge and progressive hearing loss of his right ear. The discharge has persisted despite three courses of antibiotic ear drops. Otoscopy shows perforation of the pars flaccida. A pearly white soft matter is seen at the posterior margin of the perforation. What is the SINGLE most likely diagnosis?</p> <p>A. Acute Suppurative Otitis Media B. Chronic Suppurative Otitis Media C. Acquired cholesteatoma D. Congenital cholesteatoma E. Barotrauma</p> <p>Cholesteatoma The term cholesteatoma is a misnomer as it is actually neither cholesterol nor a tumour. Cholesteatoma is a destructive and expanding growth consisting of keratinizing squamous epithelium in the middle ear and/or mastoid process. Think of cholesteatoma as an uncommon abnormal collection of skin cells inside your ear that left untreated can continue to grow and damage the bones of the middle ear (ossicles).</p> <p>Small lesions are associated with a progressive conductive hearing loss but, as the lesion grows and erodes into adjacent structures, there may be additional features such as vertigo, headache and facial nerve palsy</p> <p><u>It can be either congenital or acquired.</u></p> <p>Acquired cholesteatoma</p> <ul style="list-style-type: none">• Occurs following repeated ear infections. Note they are usually poorly responsive to antibiotic treatment• Frequent painless otorrhoea which may be foul-smelling• Progressive, unilateral conductive hearing loss• Tympanic membrane perforation is seen in around 90% of cases or retracted tympanum <p>Congenital cholesteatomas</p> <ul style="list-style-type: none">• Presents in childhood (6 months to 5 years) but may occasionally present much later, in adulthood



	<ul style="list-style-type: none">• Often no history of recurrent suppurative ear disease, previous ear surgery or tympanic membrane perforation• May be an incidental finding on routine otoscopy of an asymptomatic child• Seen as a pearly white mass behind an intact tympanic membrane <p><i>Remember: Cholesteatoma is suggested by the following:</i></p> <ul style="list-style-type: none">• <i>Foul discharge</i>• <i>Deafness</i>• <i>Headache</i>• <i>Ear pain</i>• <i>Facial paralysis</i>• <i>Vertigo</i>
11.	<p>A 4 year old boy presents with fever, severe ear ache, and vomiting. Tonsillitis was noted on examination. Otoscopy reveals a red bulging tympanic membrane. What is the SINGLE most likely diagnosis?</p> <p>A. Otitis externa B. Acute otitis media C. Referred pain from teeth D. Chronic suppurative otitis media E. Mastoiditis</p> <p>Acute otitis media may occur after a viral upper respiratory tract infections which in this case is the tonsillitis.</p> <p>Acute otitis media in children Acute otitis media is acute inflammation of the middle ear and may be caused by bacteria or viruses.</p> <p>Features</p> <ul style="list-style-type: none">• Rapid onset of pain (younger children may pull at the ear)• Fever• Irritability• Coryza• Vomiting• Often after a viral upper respiratory infection• A red, yellow or cloudy tympanic membrane or bulging of the tympanic membrane.• An air-fluid level behind the tympanic membrane• Discharge in the auditory canal secondary to perforation of the tympanic membrane• Perforation of the eardrum often relieves pain. This is because bulging of the tympanic membrane causes the pain.



12.	<p>A 11 year old girl presents to the clinic with hoarseness of voice. She is a known case of bronchial asthma and has been on oral steroids for half a year. What is the SINGLE most likely cause of her hoarseness of voice?</p> <p>A. Laryngeal candidiasis B. Infective tonsillitis C. Laryngeal edema D. Allergic drug reaction E. Ludwigs angina</p> <p>Steroids predispose to fungal infection and can cause laryngeal candidiasis which results in hoarseness.</p>
13.	<p>A 7 year old boy is brought to clinic by his mother. She says that he is always turning up the TV volume and she has to shout to get his attention. There has been recurrent ear infections in the past which was resolved by medication. On examination: a bulging drum is noticed. There is no pain or fever. What is the SINGLE most appropriate management?</p> <p>A. Grommet insertion B. Reassure and review in 3 months C. Hearing aids D. Adenoidectomy E. Antibiotics</p> <p>In PLAB 1, paediatrics ENT questions would come up occasionally. The ones to focus on would be acute otitis media, otitis media with effusion and cholesteatoma. When PLAB 1 has case scenarios where mothers notice their children “turning up the TV volume” or “doing badly in school”, before thinking of behavioral / developmental problems, go with physical problems (i.e. hearing).</p> <p>This is usually the presentation of otitis media with effusion. As this is his first visit, reassurance and review in 3 months would be the most appropriate.</p> <p>Otitis media with effusion</p> <p>Also known as glue ear is common with the majority of children having at least one episode during childhood</p> <p><i>An important risk factor for otitis media with effusion is parental smoking. This is extremely important to note as PLAB questions sometimes ask which would be the SINGLE best management and then provide an option of “tell parents to stop smoking”. One might not think this is the answer as it sounds silly, but in actual fact this is the correct answer.</i></p> <p>Presentation:</p> <ul style="list-style-type: none">• Hearing loss is usually the presenting feature (glue ear is the commonest cause of conductive hearing loss in childhood). May present as



	<ul style="list-style-type: none">○ Listening to the TV at excessively high volumes or needing things to be repeated.○ Lack of concentration, withdrawal especially in school• Secondary problems such as speech and language delay, behavioural or balance problems may also be seen• Rarely complains of ear pain• May have prior history of infections (especially upper respiratory tract) or oversized adenoids <p>Signs:</p> <ul style="list-style-type: none">• Variable, eg retracted or bulging drum. It can look dull, grey, or yellow. There may be bubbles or a fluid level <p>Diagnosis:</p> <ul style="list-style-type: none">• Audiograms: conductive defects.• Impedance audiometry: flat tympanogram <p>Treatment:</p> <ul style="list-style-type: none">• Observation first because may resolve, monitor every 3 months.• <i>(thus if a scenario is given with a recent diagnosis of otitis media with effusion, and the question is asking for the SINGLE best management → "Reassure and review in 3 months" would be the best choice.</i>• Surgery: If persistent bilateral OME over 3 months → insert grommets• Hearing aids: Reserve for persistent bilateral OME and hearing loss if surgery is not accepted.
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14.	<p>A 33 year old man comes to the clinic complaining of hearing loss in one ear. There is no earache, fever, vertigo or tinnitus. On inspection, a buildup of earwax is observed. What is the SINGLE most appropriate initial management?</p> <p>A. Olive oil ear drops B. ear irrigation C. Refer to an Ear Nose and Throat specialist for removal of wax D. Advise to keep ear dry E. Removal by cotton bud</p> <p>Ear wax softening drops are the first thing to try for a buildup of earwax. Prescribe ear drops for 3–5 days initially, to soften wax and aid removal. Sodium bicarbonate 5%, sodium chloride 0.9%, olive oil, or almond oil drops can be used</p> <p>If symptoms persist, consider ear irrigation</p> <p>If irrigation is unsuccessful, there are three options:</p> <ul style="list-style-type: none">• Advise the person to use ear drops for a further 3–5 days and then return for further irrigation.• Instill water into the ear. After 15 minutes irrigate the ear again.• Refer to an Ear Nose and Throat specialist for removal of wax. <p>NICE CKS have not recommended irrigation without prior use of a softening agent because expert opinion stated that extra force may be needed which is more likely to cause trauma.</p> <p>Advise people against inserting anything in the ear. Cotton buds, matchsticks, and hair pins can cause the wax to become impacted by pushing it further into the canal.</p>
15.	<p>A 66 year old male presents with painful swallowing. He describes it as a burning sensation that radiates to the back everytime he swallows fluid or food. What is the SINGLE most likely causative organism?</p> <p>A. Neisseria meningitidis B. Cryptococcus neoformans C. Candida albicans D. Isospora belli E. Mycobacterium avium</p> <p>Given the options, Candida albicans would be the only culprit that would cause odynophagia.</p> <p>Oesophageal candidiasis</p> <p>Presentation:</p> <ul style="list-style-type: none">• Dysphagia• Odynophagia (pain on on swallowing) food or fluids



16.	<p>A 34 year old man presents with right sided facial pain felt as upper jaw pain and located at the skin of the right cheek. He gives a history of having a cold 3 days ago. He feels tenderness at the anterior wall below the inferior orbital margin. What is the SINGLE most likely diagnosis?</p> <p>A. Ethmoid sinusitis B. Maxillary sinusitis C. Septal haematoma D. Adenoiditis E. Allergic rhinitis</p> <p>The likely diagnosis here is an acute sinusitis which is an inflammation of the membranous lining of one or more of the sinuses. Upper respiratory tract infections are one of the predisposing factors to sinusitis which explains the history in the stem of the cold 3 days ago.</p> <p>Tenderness at the anterior wall below the inferior orbital margin can be found in maxillary sinusitis.</p> <p>The maxillary sinus is innervated by the infraorbital nerve and anterior, middle and posterior superior alveolar nerves. Hence, pathology here may be felt as referred pain and described as upper jaw pain, toothache or pain directly at the skin of the cheek.</p>
17.	<p>A 6 year old girl has a left earache for 4 days. The earache then subsided 2 hours ago with the onset of a purulent discharge which relieved the pain. Her temperature is 39.2°C. What is the SINGLE most appropriate antibiotic to prescribe?</p> <p>A. Amoxicillin B. Ciprofloxacin C. Clindamycin D. Erythromycin E. Flucloxacillin</p> <p>This is the picture of Acute Otitis Media which has led to tympanic membrane perforation.</p> <p>Sometimes a child may report that the pain suddenly settles. This is followed by discharge. The reason that the pain suddenly settles is that the tympanic membrane has perforated, releasing the pressure immediately.</p> <p>Otitis media can be bacterial or viral but most are self limiting and do not require antibiotics. If an antibiotic is required, prescribe a five-day course of amoxicillin. For children who are allergic to penicillin, prescribe a five-day course of erythromycin or clarithromycin. The most common bacterial pathogens are Haemophilus influenzae, Streptococcus pneumoniae, Moraxella catarrhalis and Streptococcus pyogenes of which amoxicillin would be suitable. The most common viral pathogens are respiratory syncytial virus (RSV) and rhinovirus.</p> <p>Acute otitis media in children</p>



	<p>Acute otitis media is acute inflammation of the middle ear and may be caused by bacteria or viruses.</p> <p>Features</p> <ul style="list-style-type: none">• Rapid onset of pain (younger children may pull at the ear)• Fever• Irritability• Coryza• Vomiting• Often after a viral upper respiratory infection• A red, yellow or cloudy tympanic membrane or bulging of the tympanic membrane.• An air-fluid level behind the tympanic membrane• Discharge in the auditory canal secondary to perforation of the tympanic membrane• Perforation of the eardrum often relieves pain. This is because bulging of the tympanic membrane causes the pain.
18.	<p>A 5 year old child complains of sore throat and earache. He has a temperature of 38.6°C. Examination shows enlarged, hyperemic tonsils with pus. He is not on any medication. What is the SINGLE most likely diagnosis?</p> <p>A. Infectious mononucleosis B. Acute tonsillitis C. Scarlet fever D. Acute Epiglottitis E. Acute Otitis Media</p> <p>Tonsillitis is usually caused by a viral infection or, less commonly, a bacterial infection. The given case is a bacterial tonsillitis (probably caused a streptococcal infection). Note that the pain for tonsillitis may be referred to the ears.</p> <p>If the sore throat is due to a viral infection the symptoms are usually milder and often related to the common cold.</p> <p>In streptococcal infection the tonsils often swell and become coated and the throat is sore. The patient has a temperature, foul-smelling breath and may feel quite ill. The differences are variable and it is impossible to tell on inspection if the infection is viral or bacterial in real life. However in PLAB, look for these main four signs that point towards tonsillitis being caused by a bacterial infection rather than a viral infection.</p> <p>4 signs:</p> <ul style="list-style-type: none">• a high temperature• white pus-filled spots on the tonsils• no cough• swollen and tender lymph nodes (glands)



	<p><i>Note: In this question it is unlikely to be Infectious mononucleosis (glandular fever) as it affects teenagers most often. They may be quite unwell with very large and purulent tonsils and a long-lasting lethargy. An enlarged spleen is classically described.</i></p> <p>Tonsillitis</p> <p>Symptoms</p> <ul style="list-style-type: none">• Pain in the throat is sometimes severe and may last more than 48 hours, along with pain on swallowing.• Pain may be referred to the ears. <p>Signs</p> <ul style="list-style-type: none">• The throat is reddened, the tonsils are swollen and may be coated or have white flecks of pus on them.• Possibly a high temperature.• Swollen regional lymph glands.• Classical streptococcal tonsillitis has an acute onset, headache, abdominal pain and dysphagia.• Examination shows intense erythema of tonsils and pharynx, yellow exudate and tender, enlarged anterior cervical glands.
19.	<p>A 39 year old man has a history of swelling in the region of the submandibular region, which became more prominent and painful on chewing. He also gives a history of sour taste in the mouth and having a dry mouth. On palpation, the area is tender. What is the SINGLE most likely underlying diagnosis?</p> <p>A. Chronic sialadenitis B. Adenolymphoma C. Mikulicz's disease D. Adenoid cystic carcinoma E. Submandibular abscess</p> <p>Sialadenitis refers to inflammation of a salivary gland and may be acute or chronic, infective or autoimmune.</p> <p>The patients suffering from sialadenitis generally experience redness, swelling and pain in the affected side of the mouth. This occurs due to the enlargement of gland as a result of inflammation caused by bacteria or virus infection. The swelling may become enormously enlarged, sometimes even reaching the size of an orange, with overlying inflamed reddened skin and edema. Mild pain and swelling are usually common before and during meals. Fluctuation test may be positive in the swelling if it is filled with fluid. Other symptoms of sialadenitis include a foul taste in the mouth, decreased mobility in the jaw, dry mouth, skin changes, weight loss, shortness of breath, keratitis, dental pain, skin discharge and lymphadenopathy. The patient may run fever with rigors and chills along with malaise and generalized weakness as a result of septicemia. In severe cases, pus can often be secreted from the duct by compressing the affected gland. The duct orifice is reddened with reduced flow. There may or may not be a visible or palpable stone.</p>



20.	<p>A 30 year old lady has epistaxis for 30 minutes. Blood results shows:</p> <p>Haemoglobin 122 g/L White cell count $8 \times 10^9/L$ Platelets $200 \times 10^9/L$ Prothrombin time (PT), Activated partial thromboplastin time (APTT) and bleeding time is normal</p> <p>What is the SINGLE most likely cause of the bleed?</p> <p>A. Platelet disorder B. Clotting factor deficiency C. Sepsis D. Anatomical defect E. Warfarin use</p> <p>All her blood work is normal. This is likely a anatomical defect.</p> <p>Trauma to the nose is the most common cause. Nose picking, insertion of foreign bodies and excessive nose blowing may also be seen as trauma.</p>
21.	<p>A 17 year old woman with no previous history of ear complains, presents with a one day history of severe pain in the right ear which is extremely tender to examine. There is pain with movement of the tragus. What is the SINGLE most likely diagnosis?</p> <p>A. Chondromalacia B. Furuncle C. Myringitis D. Otitis externa E. Otitis media</p> <p>Otitis externa is difficult to examine because of tenderness. Typically there is pain when moving the tragus.</p> <p>Other features that one may see in the stem is discharge, hearing loss and fever.</p>
22.	<p>A 5 year old girl has been reported by her parents to be increasing the volume of the television to an excessive level. A hearing test conducted at school shows a symmetric loss of 40db. A grey bulging drum is seen on otoscopy on both ears. What is the SINGLE most likely diagnosis?</p> <p>A. Otitis media with effusion B. Otitis externa</p>



- C. Cholesteatoma
- D. Otosclerosis
- E. Congenital sensorineural deficit

The child's hearing loss and increasing the TV volume suggests that she has otitis media with effusion. This is supported by the otoscopy findings.

Otitis media with effusion

Also known as glue ear is common with the majority of children having at least one episode during childhood

An important risk factor for otitis media with effusion is parental smoking. This is extremely important to note as PLAB questions sometimes ask which would be the SINGLE best management and then provide an option of "tell parents to stop smoking". One might not think this is the answer as it sounds silly, but in actual fact this is the correct answer.

Presentation:

- Hearing loss is usually the presenting feature (glue ear is the commonest cause of conductive hearing loss in childhood). May present as
 - Listening to the TV at excessively high volumes or needing things to be repeated.
 - Lack of concentration, withdrawal especially in school
- Secondary problems such as speech and language delay, behavioural or balance problems may also be seen
- Rarely complains of ear pain
- May have prior history of infections (especially upper respiratory tract) or oversized adenoids

Signs:

- Variable, eg retracted or bulging drum. It can look dull, grey, or yellow. There may be bubbles or a fluid level

Diagnosis:

- Audiograms: conductive defects.
- Impedance audiometry: flat tympanogram

Treatment:

- Observation first because may resolve, monitor every 3 months.
- *(thus if a scenario is given with a recent diagnosis of otitis media with effusion, and the question is asking for the SINGLE best management → "Reassure and review in 3 months" would be the best choice.*
- Surgery: If persistent bilateral OME over 3 months → insert grommets



	<ul style="list-style-type: none">Hearing aids: Reserve for persistent bilateral OME and hearing loss if surgery is not accepted.
23.	<p>A 45 year old male presents with a whitish-grey opaque areas with red inflamed patches on his tongue. These patches are unable to be scraped off. What is the SINGLE most likely diagnosis?</p> <p>A. Kaposi's sarcoma B. Basal cell carcinoma C. Aphthous ulcer D. Oral thrush E. Leukoplakia</p> <p>Leukoplakia</p> <ul style="list-style-type: none">Seen as white thickening of the oral mucosaThe key word that question writers would have to give is that "the white patch that adheres to oral mucosa cannot be removed by rubbing"These should be biopsied as it is premalignant
24.	<p>A 48 year old man has a lump on his mandible. It has rapidly increased in size over the past 8 months. On examination, there is an induration of the skin overlying the mass. The mass is free and mobile. What is the SINGLE most appropriate investigations?</p> <p>A. Fine needle aspiration (FNA) cytology B. Computed tomography C. Salivary immunoglobulin M (IgM) D. Magnetic resonance imaging E. Erythrocyte sedimentation rate (ESR)</p> <p>Submandibular neoplasms often appear with diffuse enlargement of the gland. Any masses of this sort need to be investigated. In fact, any salivary gland swelling that is present for more than 1 month needs to be investigated or removed. Ultrasound-guided fine needle aspiration (FNA) cytology is used to obtain cytological confirmation.</p>
25.	<p>An 8 year old boy was brought by his mother complaining that her child seems to be watching the television at very high volumes. He lacks concentration and is socially withdrawn. He would prefer to read books indoors rather than play outdoors. What is the SINGLE most likely finding to be expected on an otoscopy?</p> <p>A. Flamingo pink tympanic membrane B. Attic perforation C. A bluish grey tympanic membrane with an air fluid level D. Inflamed tympanic membrane with cart wheel appearance of vessels E. Red and inflamed tympanic membrane</p> <p>Otitis media with effusion</p>



Also known as glue ear is common with the majority of children having at least one episode during childhood

An important risk factor for otitis media with effusion is parental smoking. This is extremely important to note as PLAB questions sometimes ask which would be the SINGLE best management and then provide an option of "tell parents to stop smoking". One might not think this is the answer as it sounds silly, but in actual fact this is the correct answer.

Presentation:

- Hearing loss is usually the presenting feature (glue ear is the commonest cause of conductive hearing loss in childhood). May present as
 - Listening to the TV at excessively high volumes or needing things to be repeated.
 - Lack of concentration, withdrawal especially in school
- Secondary problems such as speech and language delay, behavioural or balance problems may also be seen
- Rarely complains of ear pain
- May have prior history of infections (especially upper respiratory tract) or oversized adenoids

Signs:

- Variable, eg retracted or bulging drum. It can look dull, grey, or yellow. There may be bubbles or a fluid level

Diagnosis:

- Audiograms: conductive defects.
- Impedance audiometry: flat tympanogram

Treatment:

- Observation first because may resolve, monitor every 3 months.
- *(thus if a scenario is given with a recent diagnosis of otitis media with effusion, and the question is asking for the SINGLE best management → "Reassure and review in 3 months" would be the best choice.*
- Surgery: If persistent bilateral OME over 3 months → insert grommets
- Hearing aids: Reserve for persistent bilateral OME and hearing loss if surgery is not accepted.



26.	<p>A 15 year old boy presents to A&E with a nose bleed. The bleeding started 3 hours ago and has not stopped. His blood pressure is 115/70 mmHg, heart rate is 80 bpm and respiratory rate is 18/min. What is the SINGLE most appropriate next course of action?</p> <p>A. IV fluids B. Lean forward, open mouth and pinch cartilaginous part of nose firmly C. Lean backwards, ice packs and pinch base of nose firmly D. Start IV tranexamic acid E. Radiological arterial embolization</p> <p>Epistaxis</p> <p>Treatment of epistaxis varies with different literature. Thus, it is important to use the NHS guidelines for this question.</p> <p>If haemodynamically compromised</p> <ul style="list-style-type: none">• arrange immediate transfer to A and E. Use first aid measures to control bleeding e.g. Lean forward, open mouth. Pinch cartilaginous (soft) part of nose firmly and hold for 10 to 15 minutes without releasing the pressure, whilst breathing through their mouth. <p>If haemodynamically stable</p> <ul style="list-style-type: none">• just use first aid measures to control bleeding• If bleeding does not stop after 10 - 15 minutes of nasal pressure, (and still haemodynamically stable), then do NASAL CAUTERY (using silver nitrate). If cautery is ineffective or bleeding point cannot be seen, then NASAL PACKING.
27.	<p>A 52 year old woman has intermittent vertigo, tinnitus and fluctuating hearing loss. She complains of a sensation of ear pressure. The attacks can last for 2 to 3 hours. A MRI brain scan was reported as normal. What is the SINGLE most appropriate treatment?</p> <p>A. Prochlorperazine B. Fluphenazine C. Vitamin A D. Gentamicin drops E. Aspirin</p> <p>This is a classic case of Meniere's disease. All four clues are present: dizziness, tinnitus, deafness, and increased feeling of pressure in the ear. Treatment is prochlorperazine.</p> <p>Meniere's disease Presentation:</p> <ul style="list-style-type: none">• Dizziness, tinnitus, deafness, increased feeling of pressure in the ear. Note: Vertigo is usually the prominent symptom• Episodes last minutes to hours



	<ul style="list-style-type: none">• MRI is normal• Usually a female >> male ; 20-60 years old• Typically symptoms are unilateral but bilateral symptoms may develop after a number of years <p>Treatment:</p> <ul style="list-style-type: none">• Acute attacks: buccal or intramuscular prochlorperazine. Admission is sometimes required <p>Note that vertigo and nausea can be alleviated by prochlorperazine, cinnarizine, cyclizine, or promethazine.</p>
28.	<p>An 8 year old boy who has recently returned from Spain complains of severe pain in one ear. On examination, pus is seen in the auditory canal. The tympanic membrane looks normal. What is the SINGLE most appropriate treatment?</p> <p>A. Topical gentamicin B. Amoxicillin PO C. Analgesia D. Amoxicillin IV E. Microsuction</p> <p>The diagnosis here is otitis externa. <i>Symptoms of otitis externa include minimal discharge, itch, pain and tragal tenderness due to an acute inflammation of the skin of the meatus</i></p> <p><i>This is a frequent question and the treatment options include: Topical gentamicin or Topical gentamicin with hydrocortisone. Both are correct.</i></p>
29.	<p>A 46 year old man has a long history of chronic sinusitis. He feels that his nose is blocked and it does not clear and he occasionally sees blood when he blows his nose. He now presents with pressure in his upper teeth, recent cheek swelling, and double vision. On examination, left maxillary tenderness is noted along with epiphora of the left eye. What is the SINGLE most likely diagnosis?</p> <p>A. Nasopharyngeal carcinoma B. Pharyngeal carcinoma C. Paranasal sinus carcinoma D. Laryngeal carcinoma E. Hypopharyngeal tumour</p> <p>Paranasal sinus tumours (maxillary, ethmoid, frontal, sphenoid) are commonly well-differentiated squamous cell carcinoma. They present with signs and symptoms similar to this stem which include with local swelling, pain, and ocular symptoms if the orbit is involved. Pain particularly in the upper cheek, nasal obstruction, blood in nasal discharge point towards a likely diagnosis of paranasal sinus carcinoma.</p>



30.	<p>A 29 year old man with a medical history that includes late onset asthma attends clinic with rhinorrhoea and bilateral painless nasal obstruction. He complains of reduce sense of smell. What is the SINGLE most likely diagnosis?</p> <p>A. Septal abscess B. Septal haematoma C. Nasal polyp D. Atrophic rhinitis E. Allergic rhinitis</p> <p>Nasal polyps</p> <ul style="list-style-type: none">• Lesions arising from the nasal mucosa, occurring at any site in the nasal cavity or paranasal sinuses <p>Note that nasal polyps tend to be bilateral</p> <ul style="list-style-type: none">• Associations• Asthma• Aspirin sensitivity <p><i>It is particularly important to remember the association with asthma.</i></p> <p>Note: The association of asthma, aspirin sensitivity and nasal polyps is known as Samter's triad.</p> <p>Presentation</p> <ul style="list-style-type: none">• Nasal obstruction• Rhinorrhoea• Anosmia (loss of smell)
31.	<p>A 17 year old man presents with sore throat for several days and dysphagia. Examination reveals a unilateral bulge, above and lateral to his left tonsil. The bulge was noted to be red and inflamed. The examination of the oral cavity was proven to be difficult as he had mild trismus. Drooling of the saliva was seen. What is the SINGLE most appropriate management?</p> <p>A. Lymph node biopsy B. Intravenous antibiotic and analgesics C. Intravenous antibiotics, incision and drainage D. Excision biopsy of bulge E. Tonsillectomy</p> <p>The stem here gives a typical presentation of peritonsillar abscess. Difficulty in swallowing can result in drooling.</p> <p>The changes in microbiology of the causative organism and their resistance is the primary reason antibiotics alone is not sufficient as treatment. Incision and drainage or aspiration in combination with intravenous antibiotics is the preferred option. Needle aspiration, incision</p>



	<p>and drainage and quinsy tonsillectomy are all considered acceptable surgical management for acute peritonsillar abscess.</p> <p>Peritonsillar abscess (quinsy)</p> <ul style="list-style-type: none">• A complication of acute tonsillitis• Pus is trapped between the tonsillar capsule and the lateral pharyngeal wall• Typically preceded by a sore throat for several days <p>Presentation</p> <ul style="list-style-type: none">• Sore throat• Dysphagia• Pain localized to one side of the throat• Peritonsillar bulge• Uvular deviation → Bulging tonsil pushes the uvula away from the affected side• Fever• Trismus (difficulty opening the mouth)• Altered voice quality ('hot potato voice') due to pharyngeal oedema and trismus
32.	<p>A 10 year old boy presents to clinic with poor grades in school and difficulty in hearing. There has been recurrent ear infections in the past which was resolved by medication. On examination: bone conduction is normal, air conduction is reduced bilaterally, and there is no lateralization in the Weber's test. There is no pain. What is the SINGLE most likely diagnosis?</p> <p>A. Acute otitis media B. Perforation of tympanic membrane C. Otitis media with effusion D. Congenital sensorineural deficit E. Otosclerosis</p> <p>In PLAB 1, paediatrics ENT questions would come up occasionally. The ones to focus on would be acute otitis media, otitis media with effusion and cholesteatoma. When PLAB 1 has case scenarios where mothers notice their children “turning up the TV volume” or “doing badly in school”, before thinking of behavioral / developmental problems, go with physical problems (i.e. hearing).</p> <p>Otitis media with effusion</p> <p>Also known as glue ear is common with the majority of children having at least one episode during childhood</p> <p><i>An important risk factor for otitis media with effusion is parental smoking. This is extremely important to note as PLAB questions sometimes ask which would be the SINGLE best management and then provide an option of “tell parents to stop smoking”. One might not think this is the answer as it sounds silly, but in actual fact this is the correct answer.</i></p> <p>Presentation:</p>



	<ul style="list-style-type: none">• Hearing loss is usually the presenting feature (glue ear is the commonest cause of conductive hearing loss in childhood). May present as<ul style="list-style-type: none">◦ Listening to the TV at excessively high volumes or needing things to be repeated.◦ Lack of concentration, withdrawal especially in school• Secondary problems such as speech and language delay, behavioural or balance problems may also be seen• Rarely complains of ear pain• May have prior history of infections (especially upper respiratory tract) or oversized adenoids <p>Signs:</p> <ul style="list-style-type: none">• Variable, eg retracted or bulging drum. It can look dull, grey, or yellow. There may be bubbles or a fluid level <p>Diagnosis:</p> <ul style="list-style-type: none">• Audiograms: conductive defects.• Impedance audiometry: flat tympanogram <p>Treatment:</p> <ul style="list-style-type: none">• Observation first because may resolve, monitor every 3 months.• <i>(thus if a scenario is given with a recent diagnosis of otitis media with effusion, and the question is asking for the SINGLE best management → “Reassure and review in 3 months” would be the best choice.</i>• Surgery: If persistent bilateral OME over 3 months → insert grommets• Hearing aids: Reserve for persistent bilateral OME and hearing loss if surgery is not accepted.
33.	<p>A 5 year old girl has had an upper respiratory tract infection for 3 days and has been treated with paracetamol by her mother. In the last 12 hours, she has been irritable and with severe pain in her right ear. She has a temperature of 38.3°C. What is the SINGLE most likely diagnosis?</p> <p>A. Herpes zoster infection B. Impacted ear wax C. Mumps D. Acute otitis media E. Perforation of eardrum</p>



	<p>Acute otitis media in children</p> <p>Acute otitis media is acute inflammation of the middle ear and may be caused by bacteria or viruses.</p> <p>Features</p> <ul style="list-style-type: none">• Rapid onset of pain (younger children may pull at the ear)• Fever• Irritability• Coryza• Vomiting• Often after a viral upper respiratory infection• A red, yellow or cloudy tympanic membrane or bulging of the tympanic membrane.• An air-fluid level behind the tympanic membrane• Discharge in the auditory canal secondary to perforation of the tympanic membrane• Perforation of the eardrum often relieves pain. This is because bulging of the tympanic membrane causes the pain.
34.	<p>A 40 year old man with a 25 year history of smoking presents with progressive hoarseness of voice, difficulty swallowing and episodes of haemoptysis. He mentioned that he used to be a regular cannabis user. What is the SINGLE most likely diagnosis?</p> <p>A. Nasopharyngeal cancer B. Pharyngeal carcinoma C. Sinus cancer D. Laryngeal cancer E. Hypopharyngeal tumour</p> <p>The history of cannabis here is of no value. It has no relation to laryngeal cancer or any of the above cancers.</p> <p>Given the history of smoking, hoarseness of voice, dysphagia, and haemoptysis, the likely diagnosis is laryngeal cancer.</p> <p>Laryngeal Cancer</p> <p>Risk factors</p> <ul style="list-style-type: none">• Smoking is the main avoidable risk factor for laryngeal cancer <p>Presentation</p> <ul style="list-style-type: none">• Chronic hoarseness is the most common early symptom.• Other symptoms of laryngeal cancer include pain, dysphagia, a lump in the neck, sore throat, earache or a persistent cough.• Patients may also describe breathlessness, aspiration, haemoptysis, fatigue and weakness, or weight loss.



35. A 6 year old boy presents with a fever, sore throat and lymphadenopathy. The diagnosis of tonsillitis has been made. He had 3 similar episodes last year which were self limiting. What is the SINGLE most appropriate management for this child?

- A. Tonsillectomy
- B. Paracetamol**
- C. Oral penicillin
- D. Oral amoxicillin
- E. Prophylactic low dose penicillin

This question examines your knowledge of the indications of antibiotic use in tonsillitis and also the indications of tonsillectomy.

Antipyretic analgesics such as paracetamol and ibuprofen are of proven benefit and recommended for relief of fever, headache and throat pain in patients with sore throat

This child neither falls in the category for use of antibiotics or for a tonsillectomy.

Tonsillitis and antibiotics

For most patients, antibiotics have little effect on the duration of the condition or the severity of symptoms and therefore treatment with antibiotics is not routinely recommended.

NICE suggests prescribing antibiotics for those with:

- Features of marked systemic upset
- Increased risk of serious complications (e.g. diabetes or immunocompromised)
- Valvular heart disease
- A history of rheumatic fever

Tonsillectomy

Surgery is not a treatment for the acute condition but aimed at reducing the incidence of recurrent infections. The indications for tonsillectomy are controversial.

According to NICE, consider referral for tonsillectomy in children if all of the following criteria are met:

- 5 or more episodes of acute sore throat per year, documented by the parent or clinician
- Symptoms have been occurring for at least a year
- The episodes of sore throat have been severe enough to disrupt the child's normal behaviour or day to day functioning

The following are recommended as per SIGN guidelines as indications for consideration of tonsillectomy:

- Sore throats are due to acute tonsillitis (i.e. not recurrent upper respiratory tract infections)
- Episodes of sore throat are disabling and prevent normal functioning



	<ul style="list-style-type: none">• 7 or more adequately treated sore throats in the preceding year or• 5 or more such episodes in each of the preceding two years or• 3 or more such episodes in each of the preceding three years
36.	<p>A 38 year old man was slapped over his right ear during a fight. There is blood coming from his right external auditory canal. He describes the pain as intense and he also has ringing in his ears. He is also noted to have decreased hearing on that ear. What is the SINGLE most appropriate initial investigation?</p> <p>A. Computed tomography B. Magnetic resonance imaging C. Otoscopy D. Skull X-ray E. Facial X-ray</p> <p>It is quite clear here that the first examination should be an otoscopy to look for the source of bleeding. One would not jump right away to a computed tomography as an initial investigation for blood in the external auditory canal.</p>
37.	<p>A 30 year old man was camping and an insect got stuck in his ear which he has been unable to remove. He complains that he can still hear the buzzing in the ear. On inspection, the insect is clearly visible in the ear canal. What is the SINGLE most appropriate initial management?</p> <p>A. 2% lidocaine B. Ear irrigation C. Refer to an Ear Nose and Throat specialist D. Reassure E. Removal by cotton bud</p> <p>Insects should be killed prior to removal, using 2% lidocaine.</p> <p>Olive oil can also be used to float the insect out by pouring olive oil into the ear.</p>
38.	<p>A 6 year old child fell on his nose 3 days ago. His parents have now brought him to the hospital as he is having difficulty in breathing and feeling unwell. He has general malaise and complains of nasal pain. On examination, nasal bones are seen to be straight however there is tenderness over the dorsum of the nose. He has a temperature of 38.9°C. What is the SINGLE most likely diagnosis?</p> <p>A. Nasal polyp B. Nasal septal haematoma C. Nasal septal abscess D. Deviated nasal septum E. Fractured nose</p>



	<p>Nasal septal abscess is the likely diagnosis here given the temperature and general malaise. Nasal septal abscess is where there is a collection of pus between the mucoperichondrium and septal cartilage. It results from a bacterial infection of a nasal septal haematoma. This is why it is particularly important to incise and drain a septal haematoma as to prevent an abscess from forming.</p>
39.	<p>A mentally retarded 8 year old child puts a green pea in his ear while eating. Otoscopy shows a green coloured object in the ear canal. What is the SINGLE most appropriate approach to remove the green pea?</p> <p>A. By magnet B. Syringing C. Removal under general anaesthesia D. By hook E. By instilling olive oil</p> <p>The pea is not a magnetic material and hence it cannot be removed by a magnet.</p> <p>It will swell up if syringing is attempted. Irrigation with water is contra-indicated for soft objects, organic matter or seeds (which may swell and increase the level of pain and difficulty to remove if exposed to water).</p> <p>Removal by hook is not suitable in a mentally retarded child.</p> <p>Olive oil only works for ear wax or used to float an insect out by pouring olive oil into the ear.</p> <p>General anaesthesia to remove the foreign object is usually needed in this sort of scenario. This is to avoid injury.</p> <p>For the purpose of PLAB, whenever you see a mentally retarded child with a foreign object in the ear, the answer would be removal under general anaesthesia. (Consider a mentally retarded child to be unco-operative)</p> <p>Referral to an ear, nose and throat specialist</p> <p>Referral is indicated in the following:</p> <ul style="list-style-type: none">• If the patient requires sedation.• If there is any difficulty in removing the foreign body.• If the patient is unco-operative.• If the tympanic membrane has been perforated.• If an adhesive is in contact with the tympanic membrane. <p>Foreign objects in the ear is a very commonly asked question in PLAB. You need to know the management of these specific scenarios which include super glue in ear, seed in ear, insect in ear, wax buildup, and a foreign body in ear with an uncooperative child.</p>



40.	<p>A 33 year old patient has sensorineural hearing loss and loss of corneal reflex on the left side. He is noted to have reduced facial sensation on that same side. He also complains of tinnitus and vertigo. What is the SINGLE most definitive investigation?</p> <p>A. Computed tomography of internal auditory meatus B. Nuclear imaging of brain C. Magnetic resonance imaging of internal auditory meatus D. Radioisotope scan E. X-ray skull</p> <p>Hearing loss, tinnitus, vertigo points towards an affected vestibulocochlear nerve. Absent corneal reflex and reduced facial sensation is due to the trigeminal nerve being affected.</p> <p>Acoustic neuroma could account for these set of symptoms in which case MRI would be the investigation of choice.</p> <p>Acoustic neuroma Acoustic neuromas (more correctly called vestibular schwannomas) account for approximately five percent of intracranial tumours and 90 percent of cerebellopontine angle. It causes problems by having local pressure and behaving as a space-occupying lesion.</p> <p>Features can be predicted by the affected cranial nerves</p> <ul style="list-style-type: none">• Cranial nerve VIII: hearing loss (sensorineural deafness), vertigo, tinnitus• Cranial nerve V: absent corneal reflex• Cranial nerve VII: facial palsy <p>Bilateral acoustic neuromas are seen in neurofibromatosis type 2</p> <p>Investigation</p> <ul style="list-style-type: none">• MRI of the cerebellopontine angle is the investigation of choice
41.	<p>A 28 year old man has a headache that worsens on bending his head forward. He has no nausea or vomiting. The headache tends to be at its worst first thing in the morning and improves by the afternoon. What is the SINGLE most likely diagnosis?</p> <p>A. Chronic sinusitis B. Trigeminal neuralgia C. Migraine D. Cluster headache E. Tension headache</p> <p>The key word here is “a headache that worsens on bending his head forward”. There are two types of headaches which can worsen on bending. Sinus headaches and migraines. Sinusitis, however, usually is not associated with nausea or vomiting. Migraines, depending on severity, are often accompanied by nausea, vomiting and sensitivity to light.</p>



	<p>Sinus headaches are an uncommon type of headache caused by inflamed sinuses. It happens when there is a build-up of pressure inside the sinuses and the small opening from the sinuses to the nose becomes blocked. The pressure builds up and causes pain behind the face and head. They are felt as a dull, throbbing pain in the upper face especially in the area of the cheeks (maxillary sinus), bridge of the nose (ethmoid sinus), or above the eyes (frontal sinus). It is usually on one side and tends to be worse first thing in the morning. The pain may get worse when you move your head, strain or bend forward. It is usually accompanied by a stuffy nose. Examination of the facial area may reveal local tenderness, redness, swelling, and the presence of clear or discolored nasal discharge.</p> <p>Remember: Both sinus headaches and migraine headache pain often gets worse when you bend forward. However, migraines are more severe than sinus headaches and symptoms may include nausea and vomiting</p>
42.	<p>A 45 year old man presents with hearing loss and tinnitus in the right ear. A 512 Hz tuning fork is used which highlights Rinne's test having AC > BC bilaterally. Weber test lateralizes to the left. What is the SINGLE next best investigation?</p> <p>A. Computed tomography B. Magnetic resonance imaging C. Angiogram D. Otoscopy E. Oto-acoustic emissions</p> <p>AC > BC indicates Rinne positive (i.e. deafness is not conductive). It is important to note that the hearing loss is on right side. Weber lateralized to left. Weber lateralizes to the same side if there is conductive deafness and to opposite if there is sensorineural deafness. It is quite obvious that the deafness of right ear is sensorineural deafness for which magnetic resonance imaging brain is the next best investigation.</p> <p>Sensorineural hearing loss refers to problems occurring in the cochlea, cochlear nerve or brain stem, resulting in abnormal or absent neurosensory impulses. MRI scan can be used to identify gross structural causes of hearing loss. They are useful in cases where a tumour is suspected or to determine the degree of damage in a hearing loss caused by bacterial infection or auto-immune disease.</p> <p>Rinne's and Weber's test</p> <p>Performing both Rinne's and Weber's test allows differentiation of conductive and sensorineural deafness.</p> <p><u>Rinne's test</u> A tuning fork is placed over the mastoid process until the sound is no longer heard, followed by repositioning just over external acoustic meatus</p> <ul style="list-style-type: none">Note that air conduction (AC) is normally better than bone conduction (BC) (Positive Rinne's test)



	<ul style="list-style-type: none">• If $BC > AC$, then the patient has conductive deafness (Negative Rinne's test) (Abnormal Rinne's test) <p>Note that the words positive and negative are used in a somewhat confusing fashion here, as compared to their normal use in medical tests. Positive or negative in this case means that a certain parameter that was evaluated was present or not. In this case, that parameter is whether air conduction (AC) is better than bone conduction (BC). Thus, a "positive" result indicates the healthy state, in contrast to many other medical tests. Therefore, some prefer to avoid using the term 'positive' or 'negative', and simply state if the test was normal or abnormal e.g. 'Rinne's test was abnormal in the right ear, with bone conduction greater than air conduction'.</p> <p><u>Weber's test</u></p> <p>A tuning fork is placed in the middle of the forehead equidistant from the patient's ears. The patient is then asked which side is loudest</p> <ul style="list-style-type: none">• If sound is localised to the unaffected side, then this is unilateral sensorineural deafness• If sound is localised to the affected side, then this is unilateral conductive deafness <p><u>Example</u></p> <p>If Weber's test localises to the right side. It can either be right conductive deafness OR left sensorineural deafness. A Rinne's test would be able to confirm if it is a right conductive deafness.</p>
43.	<p>A 2 year old child is brought by his mother. The mother had hearing impairment in her early childhood and is now concerned about the child having a similar condition. What is the SINGLE best investigation to be done for the child?</p> <p>A. Conditioned response audiometry B. Distraction testing C. Scratch test D. Tuning fork E. Otoacoustic emissions</p> <p>Hearing tests in the children:</p> <ul style="list-style-type: none">• < 6 months<ul style="list-style-type: none">○ Otoacoustic emissions (OAE):<ul style="list-style-type: none">▪ Vibration of the hair cells in response to noise generates acoustic energy which is detected by a microphone in the external meatus.○ Audiological brainstem responses (ABR):<ul style="list-style-type: none">▪ The ears are covered with earphones that emit a series of soft clicks. Electrodes on the infant's forehead and neck measure brain wave activity in response to the clicks.• 6-18 months:<ul style="list-style-type: none">○ Distraction testing:



	<ul style="list-style-type: none">▪ As the child sits on parent's lap, an assistant in front attracts the child's attention while a tester attempts to distract by making noises behind and beside child, eg with a rattle, conversational voice.• 2-4 years:<ul style="list-style-type: none">○ Conditioned response audiometry:<ul style="list-style-type: none">▪ The child is trained to put pegs into holes or give toys to a parent on a particular auditory cue.○ Speech discrimination:<ul style="list-style-type: none">▪ The child touches selected objects cued by acoustically similar phrases, eg key/tree.• 5 years:<ul style="list-style-type: none">○ Pure tone audiogram<ul style="list-style-type: none">▪ Each ear is tested individually. The child presses a button when he hears a tone.
44.	<p>A 33 year old tennis player has to stop playing tennis competitively because she has recurrent vertigo attacks every time she plays tennis. The vertigo attacks started after a history of runny nose, cough and fever. Her hearing is not affected. What is the SINGLE most likely diagnosis?</p> <p>A. Acoustic neuroma B. Meniere's disease C. Labyrinthitis D. Benign paroxysmal positional vertigo E. Vestibular neuritis</p> <p>This may sound like benign paroxysmal positional vertigo but because of the history of runny nose, cough and fever, it is more likely to be vestibular neuritis. Vestibular neuritis follows a viral infection and can cause vertigo, nausea and vomiting on movement of the head.</p> <p>Vestibular neuritis Develops over hours and resolves in days. Usually followed by a viral infection. Strictly speaking the term means inflammation of the vestibular nerve but the aetiology is thought to be a vestibular neuropathy.</p> <p>Presentation</p> <ul style="list-style-type: none">• Onset is usually very abrupt• Recurrent vertigo attacks lasting hours or days• Unsteadiness, nausea and vomiting (feel as if the room is rotating)• Moving the head aggravates symptoms <p><i>Note: Labyrinthitis is a similar syndrome to vestibular neuritis, but with the addition of hearing symptoms (sensory type hearing loss or tinnitus). There is no hearing loss with vestibular neuritis.</i></p>



45.	<p>A 44 year old man presents with muffled hearing and tinnitus. He also complains of the feeling of pressure in ear and vertigo. He has double vision when looking to the right. What is the SINGLE most likely diagnosis?</p> <p>A. Meniere's disease B. Acoustic neuroma C. Acute labyrinthitis D. Meningioma E. Otosclerosis</p> <p>Hearing loss, feeling of pressure in the ear with tinnitus, vertigo and involvement of cranial nerve i.e. right abducens nerve are suggestive of acoustic neuroma</p> <p>Acoustic neuroma Acoustic neuromas (more correctly called vestibular schwannomas) account for approximately five percent of intracranial tumours and 90 percent of cerebellopontine angle. It causes problems by having local pressure and behaving as a space-occupying lesion.</p> <p>Features can be predicted by the affected cranial nerves</p> <ul style="list-style-type: none">• Cranial nerve VIII: hearing loss (sensorineural deafness), vertigo, tinnitus• Cranial nerve V: absent corneal reflex• Cranial nerve VII: facial palsy <p>Bilateral acoustic neuromas are seen in neurofibromatosis type 2</p> <p>Investigation</p> <ul style="list-style-type: none">• MRI of the cerebellopontine angle is the investigation of choice
46.	<p>A 7 year old boy is brought to clinic by his mother. His mother complains that he has been getting in trouble in school because he is inattentive in class. The mother also mentions that he sits close to the television at home. These problems have been going on for more than 12 months. There is no pain or fever. A tympanogram highlights conductive hearing loss at 30-dB. What is the SINGLE most appropriate management?</p> <p>A. Grommet insertion B. Reassure and review in 3 months C. Hearing aids D. Adenoidectomy E. Refer to child psychologist</p> <p>In PLAB 1, paediatrics ENT questions would come up occasionally. The ones to focus on would be acute otitis media, otitis media with effusion and cholesteatoma. When PLAB 1 has case scenarios where mothers notice their children "turning up the TV volume" or "doing badly in school", before thinking of behavioral / developmental problems, go with physical problems (i.e. hearing).</p>



This is usually the presentation of otitis media with effusion. A tympanogram would show a hearing loss between 20 to 40 dB. If this was his first visit, reassurance and review in 3 months would be the most appropriate. But as this problem has been persisting for more than 12 months, a referral for a grommet insertion would be the more appropriate choice.

Otitis media with effusion

Also known as glue ear is common with the majority of children having at least one episode during childhood

An important risk factor for otitis media with effusion is parental smoking. This is extremely important to note as PLAB questions sometimes ask which would be the SINGLE best management and then provide an option of "tell parents to stop smoking". One might not think this is the answer as it sounds silly, but in actual fact this is the correct answer.

Presentation:

- Hearing loss is usually the presenting feature (glue ear is the commonest cause of conductive hearing loss in childhood). May present as
 - Listening to the TV at excessively high volumes or needing things to be repeated.
 - Lack of concentration, withdrawal especially in school
- Secondary problems such as speech and language delay, behavioural or balance problems may also be seen
- Rarely complains of ear pain
- May have prior history of infections (especially upper respiratory tract) or oversized adenoids

Signs:

- Variable, eg retracted or bulging drum. It can look dull, grey, or yellow. There may be bubbles or a fluid level

Diagnosis:

- Audiograms: conductive defects.
- Impedance audiometry: flat tympanogram

Treatment:

- Observation first because may resolve, monitor every 3 months.
- *(thus if a scenario is given with a recent diagnosis of otitis media with effusion, and the question is asking for the SINGLE best management → "Reassure and review in 3 months" would be the best choice.*



	<ul style="list-style-type: none">• Surgery: If persistent bilateral OME over 3 months → insert grommets• Hearing aids: Reserve for persistent bilateral OME and hearing loss if surgery is not accepted.
47.	<p>A 6 year old boy was was playing in the playground when he stuck a seed into his ear. He has been unable to remove it. On inspection, the seed is clearly visible in the ear canal. What is the SINGLE most appropriate management?</p> <p>A. 2% lidocaine B. Ear irrigation C. Refer to an Ear Nose and Throat specialist D. Suction with a small catheter E. Removal by cotton bud</p> <p>Irrigation with water is contra-indicated for soft objects, organic matter or seeds (which may swell and increase the level of pain and difficulty to remove if exposed to water).</p> <p>Suction with a small catheter held in contact with the object may be effective.</p>
48.	<p>A 62 year old man with a long history of smoking and alcohol presents with nasal obstruction, and on and off nose bleeds. He has a noticeable lump on his upper neck. He is having difficulty hearing with his left ear and has had worsening ear pain in that ear. Examination reveals conductive hearing loss in the left ear. What is the SINGLE most likely diagnosis?</p> <p>A. Nasopharyngeal carcinoma B. Paranasal sinus carcinoma C. Oesophageal carcinoma D. Oropharyngeal carcinomas E. Hypopharyngeal carcinoma</p> <p>The first symptom of nasopharyngeal carcinoma is often a painless swelling or lump in the upper neck. This is often due to a swollen lymph node. Other symptoms include nasal obstruction, epistaxis and otitis media from eustachian tube obstruction. Hearing loss (conductive deafness) in one ear and tinnitus are also symptoms seen in nasopharyngeal carcinoma.</p> <p>Smoking and alcohol can increase the risk of nasopharyngeal carcinoma but then again, they increase risk in many other types of cancers. One specific risk factor for nasopharyngeal carcinoma is an infection with the Epstein-Barr virus.</p>



49. A 9 year old girl has been increasing the volume of the television to an excessive level. Her parents complain that she needs them to repeat themselves constantly. On examination: bone conduction is normal, air conduction is reduced bilaterally. What is the SINGLE most likely diagnosis?

- A. Perforation of tympanic membrane
- B. Otitis media with effusion**
- C. Congenital sensorineural deficit
- D. Otosclerosis
- E. Presbycusis

The diagnosis here is otitis media with effusion. The hearing tests would typically show a mild conductive hearing loss.

Otitis media with effusion

Also known as glue ear is common with the majority of children having at least one episode during childhood

An important risk factor for otitis media with effusion is parental smoking. This is extremely important to note as PLAB questions sometimes ask which would be the SINGLE best management and then provide an option of "tell parents to stop smoking". One might not think this is the answer as it sounds silly, but in actual fact this is the correct answer.

Presentation:

- Hearing loss is usually the presenting feature (glue ear is the commonest cause of conductive hearing loss in childhood). May present as
 - Listening to the TV at excessively high volumes or needing things to be repeated.
 - Lack of concentration, withdrawal especially in school
- Secondary problems such as speech and language delay, behavioural or balance problems may also be seen
- Rarely complains of ear pain
- May have prior history of infections (especially upper respiratory tract) or oversized adenoids

Signs:

- Variable, eg retracted or bulging drum. It can look dull, grey, or yellow. There may be bubbles or a fluid level

Diagnosis:

- Audiograms: conductive defects.



	<ul style="list-style-type: none">• Impedance audiometry: flat tympanogram <p>Treatment:</p> <ul style="list-style-type: none">• Observation first because may resolve, monitor every 3 months.• <i>(thus if a scenario is given with a recent diagnosis of otitis media with effusion, and the question is asking for the SINGLE best management → “Reassure and review in 3 months” would be the best choice.</i>• Surgery: If persistent bilateral OME over 3 months → insert grommets• Hearing aids: Reserve for persistent bilateral OME and hearing loss if surgery is not accepted.
50.	<p>A 10 year old boy presents to his GP with a nose bleed. The bleeding started 1 hour ago and has not stopped. He is haemodynamically stable. What is the SINGLE most appropriate next course of action?</p> <p>A. Press the base of the nose B. Press the soft parts of the nose C. Ice packs and lean backwards D. Start oral tranexamic acid E. Send to A&E</p> <p>Epistaxis</p> <p>Treatment of epistaxis varies with different literature. Thus, it is important to use the NHS guidelines for this question.</p> <p>If haemodynamically compromised</p> <ul style="list-style-type: none">• arrange immediate transfer to A and E. Use first aid measures to control bleeding e.g. Lean forward, open mouth. Pinch cartilaginous (soft) part of nose firmly and hold for 10 to 15 minutes without releasing the pressure, whilst breathing through their mouth. <p>If haemodynamically stable</p> <ul style="list-style-type: none">• just use first aid measures to control bleeding• If bleeding does not stop after 10 - 15 minutes of nasal pressure, (and still haemodynamically stable), then do NASAL CAUTERY (using silver nitrate). If cautery is ineffective or bleeding point cannot be seen, then NASAL PACKING.
51.	<p>A 45 year old woman presents with rotational vertigo, nausea and vomiting which is worst when moving her head. She also had a similar episode 2 years ago. These episodes typically follow an event of runny nose, cough and fever. What is the SINGLE most likely diagnosis?</p>



	<p>A. Acoustic neuroma B. Meniere's disease C. Labyrinthitis D. Benign paroxysmal positional vertigo E. Vestibular neuronitis</p> <p>This may sound like benign paroxysmal positional vertigo but because of the history of runny nose, cough and fever, it is more likely to be vestibular neuritis. Vestibular neuritis follows a viral infection and can cause vertigo, nausea and vomiting on movement of the head.</p> <p>Vestibular neuritis Develops over hours and resolves in days. Usually followed by a viral infection. Strictly speaking the term means inflammation of the vestibular nerve but the aetiology is thought to be a vestibular neuropathy.</p> <p>Presentation</p> <ul style="list-style-type: none">• Onset is usually very abrupt• Recurrent vertigo attacks lasting hours or days• Unsteadiness, nausea and vomiting (feel as if the room is rotating)• Moving the head aggravates symptoms <p>Note there is no hearing loss with vestibular neuritis</p>
52.	<p>A 9 year old girl has been referred for assessment of hearing as she is finding difficulty in hearing her teacher in the class. Her hearing tests show that bone conduction is normal and symmetrical air conduction threshold is reduced bilaterally. Weber test does not lateralize. What is the SINGLE most likely diagnosis?</p> <p>A. Perforation of tympanic membrane B. Otitis media with effusion C. Congenital sensorineural deficit D. Otosclerosis E. Presbycusis</p> <p>The diagnosis here is otitis media with effusion. The hearing tests would typically show a mild conductive hearing loss.</p> <p>Otitis media with effusion</p> <p>Also known as glue ear is common with the majority of children having at least one episode during childhood</p> <p><i>An important risk factor for otitis media with effusion is parental smoking. This is extremely important to note as PLAB questions sometimes ask which would be the SINGLE best management and then provide an option of "tell parents to stop smoking". One might not think this is the answer as it sounds silly, but in actual fact this is the correct answer.</i></p>



	<p>Presentation:</p> <ul style="list-style-type: none">• Hearing loss is usually the presenting feature (glue ear is the commonest cause of conductive hearing loss in childhood). May present as<ul style="list-style-type: none">◦ Listening to the TV at excessively high volumes or needing things to be repeated.◦ Lack of concentration, withdrawal especially in school• Secondary problems such as speech and language delay, behavioural or balance problems may also be seen• Rarely complains of ear pain• May have prior history of infections (especially upper respiratory tract) or oversized adenoids <p>Signs:</p> <ul style="list-style-type: none">• Variable, eg retracted or bulging drum. It can look dull, grey, or yellow. There may be bubbles or a fluid level <p>Diagnosis:</p> <ul style="list-style-type: none">• Audiograms: conductive defects.• Impedance audiometry: flat tympanogram <p>Treatment:</p> <ul style="list-style-type: none">• Observation first because may resolve, monitor every 3 months.• <i>(thus if a scenario is given with a recent diagnosis of otitis media with effusion, and the question is asking for the SINGLE best management → “Reassure and review in 3 months” would be the best choice.</i>• Surgery: If persistent bilateral OME over 3 months → insert grommets• Hearing aids: Reserve for persistent bilateral OME and hearing loss if surgery is not accepted.
53.	<p>A 28 year old woman complains of vertigo and nausea that last around 30 minutes several times a year. She has mild hearing loss in the left ear. A diagnosis of Meniere’s disease is made. What is the SINGLE most appropriate treatment?</p> <p>A. Aspirin B. Metoclopramide C. Cyclizine D. Clotrimazole E. Ondansetron</p>



	<p>There are a number of medications that can be used to treat Meniere's disease. These are prochlorperazine, cinnarizine, cyclizine, or promethazine. They help with the vertigo.</p> <p>Meniere's disease Presentation:</p> <ul style="list-style-type: none">• Dizziness, tinnitus, deafness, increased feeling of pressure in the ear. Note: Vertigo is usually the prominent symptom• Episodes last minutes to hours• MRI is normal• Usually a female >> male ; 20-60 years old• Typically symptoms are unilateral but bilateral symptoms may develop after a number of years <p>Treatment:</p> <ul style="list-style-type: none">• Acute attacks: buccal or intramuscular prochlorperazine. Admission is sometimes required <p>Note that vertigo and nausea can be alleviated by prochlorperazine, cinnarizine, cyclizine, or promethazine.</p>
54.	<p>A 16 year old female presents with a midline lump on her neck. It is painless and smooth. The swelling tends to move upwards when she protrudes her tongue. What is the SINGLE most likely diagnosis?</p> <p>A. Thyroglossal cyst B. Goitre C. Pharyngeal Pouch D. Thyroid cancer E. Lipoma</p> <p>Thyroglossal cysts Thyroglossal cysts represent the most common congenital anomaly of the neck and account for 2-4% of all neck masses. They form along the embryological tract of the thyroid. They usually present as fluctuant swellings in the midline of the neck along the line of thyroid descent. These cyst tend to move upwards on tongue protrusion because they are attached to the thyroglossal tract which attaches to the larynx by the peritracheal fascia. They are painless and mobile but can become painful if infected.</p>
55.	<p>A 75 year old man presents with symptoms of progressive sensorineural hearing loss on the right. He also complains of dizziness and tinnitus. What is the SINGLE most appropriate investigation?</p> <p>A. Computed tomography of internal auditory meatus B. Nuclear imaging of brain C. Magnetic resonance imaging of internal auditory meatus D. Ultrasound scan and fine needle aspiration E. X-ray skull</p>



	<p>Hearing loss, tinnitus, vertigo points towards an affected vestibulocochlear nerve. An acoustic neuroma would be up on the list of differentials. An MRI of the internal auditory meatus will show a benign tumour in the cerebellopontine angle.</p> <p>Sometimes, in the stem, they would include facial palsy as a feature.</p> <p>Acoustic neuroma</p> <p>Acoustic neuromas (more correctly called vestibular schwannomas) account for approximately five percent of intracranial tumours and 90 percent of cerebellopontine angle. It causes problems by having local pressure and behaving as a space-occupying lesion.</p> <p>Features can be predicted by the affected cranial nerves</p> <ul style="list-style-type: none">• Cranial nerve VIII: hearing loss (sensorineural deafness), vertigo, tinnitus• Cranial nerve V: absent corneal reflex• Cranial nerve VII: facial palsy <p>Bilateral acoustic neuromas are seen in neurofibromatosis type 2</p> <p>Investigation</p> <ul style="list-style-type: none">• MRI of the cerebellopontine angle is the investigation of choice
56.	<p>A 6 year old boy was was playing at home alone when he stuck super glue into his ear. His mother has brought him to A&E and is extremely concerned. On inspection, the adhesive is in contact with the tympanic membrane. What is the SINGLE most appropriate management?</p> <p>A. Reassure B. Ear irrigation C. Refer to an Ear Nose and Throat specialist D. Suction with a small catheter E. Manual removal immediately</p> <p>Adhesives (eg, Super Glue®) may be removed manually within 1-2 days once desquamation has occurred. Referral to an ear, nose and throat specialist is required if an adhesive is in contact with the tympanic membrane.</p> <p>Foreign objects in the ear is a very commonly asked question in PLAB. You need to know the management of these specific scenarios which include super glue in ear, seed in ear, insect in ear, wax buildup, and a foreign body in ear with an uncooperative child.</p>



57.	<p>A 12 year old boy presents with right sided hearing loss and facial drooping on the right side. He has a headache and feels dizzy. On examination, both ears appear normal with an intact eardrum. Rinne's test was found to be normal. Weber test lateralized to the left. What is the SINGLE most likely diagnosis?</p> <p>A. Bell's palsy B. Lyme disease C. Acoustic neuroma D. Pituitary adenoma E. Glioma</p> <p>Acoustic neuroma Acoustic neuromas (more correctly called vestibular schwannomas) account for approximately five percent of intracranial tumours and 90 percent of cerebellopontine angle. It causes problems by having local pressure and behaving as a space-occupying lesion.</p> <p>Features can be predicted by the affected cranial nerves</p> <ul style="list-style-type: none">• Cranial nerve VIII: hearing loss (sensorineural deafness), vertigo, tinnitus• Cranial nerve V: absent corneal reflex• Cranial nerve VII: facial palsy <p>Bilateral acoustic neuromas are seen in neurofibromatosis type 2</p> <p>Investigation</p> <ul style="list-style-type: none">• MRI of the cerebellopontine angle is the investigation of choice
58.	<p>A 35 year old woman has dull pain in her right ear which has been present for several weeks. The pain is located in front of the tragus of the right ear and spreads along the cheek and mandible. Chewing increases the pain. Her husband has mentioned that she grinds her teeth when she sleeps at night. The eardrum appears normal and there is no discharge. What is the SINGLE most likely diagnosis?</p> <p>A. Dental caries B. Mumps C. Otitis media D. Temporomandibular joint disorder E. Trigeminal neuralgia</p> <p>The term temporomandibular disorders (TMDs) refers to a group of disorders affecting the temporomandibular joint (TMJ), masticatory muscles and the associated structures.</p> <p>One of the contributing factors is muscle overactivity which include bruxism (grinding of teeth) which is seen in this stem.</p> <p>Symptoms of temporomandibular disorders include facial pain, restricted jaw function and joint noise. The pain is around the temporomandibular joint but is often referred to the head, neck and ear.</p>



<p>59.</p>	<p>A 44 year old man has difficulty hearing on his right ear. Rinne's test was done and it was normal in both ears however Weber's test lateralized to the left ear. What is the SINGLE most likely diagnosis?</p> <p>A. Right sensorineural deafness B. Left sensorineural deafness C. Right conductive deafness D. Left conductive deafness E. Bilateral sensorineural deafness</p> <p>Rinne's and Weber's test</p> <p>Performing both Rinne's and Weber's test allows differentiation of conductive and sensorineural deafness.</p> <p><u>Rinne's test</u> A tuning fork is placed over the mastoid process until the sound is no longer heard, followed by repositioning just over external acoustic meatus</p> <ul style="list-style-type: none">• Note that air conduction (AC) is normally better than bone conduction (BC) (Positive Rinne's test)• If $BC > AC$, then the patient has conductive deafness (Negative Rinne's test) (Abnormal Rinne's test) <p>Note that the words positive and negative are used in a somewhat confusing fashion here, as compared to their normal use in medical tests. Positive or negative in this case means that a certain parameter that was evaluated was present or not. In this case, that parameter is whether air conduction (AC) is better than bone conduction (BC). Thus, a "positive" result indicates the healthy state, in contrast to many other medical tests. Therefore, some prefer to avoid using the term 'positive' or 'negative', and simply state if the test was normal or abnormal e.g. 'Rinne's test was abnormal in the right ear, with bone conduction greater than air conduction'.</p> <p><u>Weber's test</u> A tuning fork is placed in the middle of the forehead equidistant from the patient's ears. The patient is then asked which side is loudest</p> <ul style="list-style-type: none">• If sound is localised to the unaffected side, then this is unilateral sensorineural deafness• If sound is localised to the affected side, then this is unilateral conductive deafness <p><u>Example</u> If Weber's test localises to the right side. It can either be right conductive deafness OR left sensorineural deafness. A Rinne's test would be able to confirm if it is a right conductive deafness.</p>
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60.	<p>A 48 year old man has difficulty hearing. Bone conduction is better than air conduction in the left ear. The sound was localised towards the left side on Weber's test. What is the SINGLE most likely diagnosis?</p> <p>A. Right sensorineural deafness B. Left sensorineural deafness C. Right conductive deafness D. Left conductive deafness E. Bilateral conductive deafness</p> <p>Rinne's and Weber's test</p> <p>Performing both Rinne's and Weber's test allows differentiation of conductive and sensorineural deafness.</p> <p><u>Rinne's test</u></p> <p>A tuning fork is placed over the mastoid process until the sound is no longer heard, followed by repositioning just over external acoustic meatus</p> <ul style="list-style-type: none">• Note that air conduction (AC) is normally better than bone conduction (BC) (Positive Rinne's test)• If $BC > AC$, then the patient has conductive deafness (Negative Rinne's test) (Abnormal Rinne's test) <p>Note that the words positive and negative are used in a somewhat confusing fashion here, as compared to their normal use in medical tests. Positive or negative in this case means that a certain parameter that was evaluated was present or not. In this case, that parameter is whether air conduction (AC) is better than bone conduction (BC). Thus, a "positive" result indicates the healthy state, in contrast to many other medical tests. Therefore, some prefer to avoid using the term 'positive' or 'negative', and simply state if the test was normal or abnormal e.g. 'Rinne's test was abnormal in the right ear, with bone conduction greater than air conduction'.</p> <p><u>Weber's test</u></p> <p>A tuning fork is placed in the middle of the forehead equidistant from the patient's ears. The patient is then asked which side is loudest</p> <ul style="list-style-type: none">• If sound is localised to the unaffected side, then this is unilateral sensorineural deafness• If sound is localised to the affected side, then this is unilateral conductive deafness <p><u>Example</u></p> <p>If Weber's test localises to the right side. It can either be right conductive deafness OR left sensorineural deafness. A Rinne's test would be able to confirm if it is a right conductive deafness.</p>
61.	<p>A 45 year old man has noticed difficulty hearing over the telephone. His hearing has been progressively getting worse over the last few years. He is concerned because his father has had similar problems around his age. Rinne's and Weber's test demonstrate conductive</p>



	<p>hearing loss. An audiogram shows moderate hearing loss in both ears across all frequencies. What is the SINGLE most likely diagnosis?</p> <p>A. Acoustic neuroma B. Meniere's' disease C. Glue ear D. Otosclerosis E. Presbycusis</p> <p>This patient has conductive hearing loss. With that information, we are able to rule out a few options here. Acoustic neuroma, and presbycusis present with sensorineural hearing loss, so we can cross those out right away. Meniere's disease classically has four clues which are present in the stem: dizziness, tinnitus, deafness, and increased feeling of pressure in the ear (Note: Vertigo being the prominent symptom). Glue ear (Otitis media with effusion) is more common in children. With the given family history, otosclerosis fits the best.</p> <p>Otosclerosis</p> <p>In otosclerosis, there is a pathological increased bony turnover leading to sclerosis and failure of the sound conduction mechanism. This is due to ankylosis of the stapes footplate in the fenestra ovalis of the cochlea. This reduces normal sound transmission resulting in a conductive deafness.</p> <p>Otosclerosis is the commonest cause of progressive deafness in young adults although the numbers of incidences seems to be reducing. It usually presents between teen years and middle age (typically between the ages of 15 and 35).</p> <p>Genetic factors are involved, so the condition often (but not always) runs in families. <i>The family history is especially important to note as it is commonly given in the stem if the question writers want you to pick otosclerosis.</i></p> <p>Both ears may be affected, although it is not uncommon for one ear to be worse than the other.</p> <p>Untreated, the deafness gradually worsens and in a small percentage of people it can cause profound hearing loss. Other symptoms of otosclerosis can include tinnitus and vertigo.</p> <p>It is progressive and there is no curative treatment at the moment. Management usually involves either surgery or bilateral hearing aids.</p> <p><i>Key features for otosclerosis:</i></p> <ul style="list-style-type: none">• <i>Conductive hearing loss (Where the cochlea is involved there may be a mixed conductive/sensory pattern of hearing loss)</i>• <i>Family history of hearing loss</i>
62.	<p>A 10 year old child developed fever, severe earache and tonsillitis following an upper respiratory tract infection. On otoscopy, the tympanic membrane is distinctly red. What is the most likely diagnosis?</p>



	<p>A. Acute Otitis Media B. Otitis Externa C. Glue Ear D. Meningitis E. Vestibular Neuritis</p> <p>In older children and adults, AOM usually presents with earache. If the child was younger, he may pull or rub his ear, or may have nonspecific symptoms such as fever, irritability, crying, poor feeding, restlessness at night, cough, or rhinorrhoea.</p> <p>Acute otitis media in children Acute otitis media is acute inflammation of the middle ear and may be caused by bacteria or viruses.</p> <p>Features</p> <ul style="list-style-type: none">• Rapid onset of pain (younger children may pull at the ear)• Fever• Irritability• Coryza• Vomiting• Often after a viral upper respiratory infection• A red, yellow or cloudy tympanic membrane or bulging of the tympanic membrane.• An air-fluid level behind the tympanic membrane• Discharge in the auditory canal secondary to perforation of the tympanic membrane• Perforation of the eardrum often relieves pain. This is because bulging of the tympanic membrane causes the pain.
63.	<p>A 6 year old down syndrome boy was was playing at home alone when he stuck a small piece of toy into his ear. His mother has brought him to a GP clinic and is extremely concerned. On inspection, a small foreign object is visible. The child is uncooperative and does not understand why his mother has brought him here. What is the SINGLE most appropriate management?</p> <p>A. Olive oil ear drops B. Ear irrigation C. Refer to an Ear Nose and Throat specialist D. Suction with a small catheter E. Manual removal immediately using forceps</p> <p>This patient is uncooperative and needs an ENT referral. General anaesthesia to remove the foreign object is usually needed in this sort of scenario.</p> <p>Referral to an ear, nose and throat specialist</p> <p>Referral is indicated in the following:</p>



	<ul style="list-style-type: none">• If the patient requires sedation.• If there is any difficulty in removing the foreign body.• If the patient is unco-operative.• If the tympanic membrane has been perforated.• If an adhesive is in contact with the tympanic membrane. <p>Foreign objects in the ear is a very commonly asked question in PLAB. You need to know the management of these specific scenarios which include super glue in ear, seed in ear, insect in ear, wax buildup, and a foreign body in ear with an uncooperative child.</p>
64.	<p>A 25 year old man presents with a history of pain and swelling in the submandibular region that has been present for weeks. The pain is unilateral and more prominent during eating. The area is tender on palpation. What is the SINGLE most likely diagnosis?</p> <p>A. Chronic sialadenitis B. Adenolymphoma C. Mikulicz's disease D. Adenoid cystic carcinoma E. Salivary gland neoplasm</p> <p>Pain, swelling, more pain on chewing, tenderness, suggests diagnosis of submandibular chronic sialadenitis. Chronic sialadenitis is usually secondary to sialolithiasis (salivary stone).</p> <p>Sialadenitis Refers to inflammation of a salivary gland and may be acute or chronic.</p> <p>Acute sialadenitis Acute sialadenitis is an acute inflammation of a salivary gland. Patients typically present acutely in A and E with erythema over the area, pain, tenderness upon palpation, and swelling. The infection is often the result of dehydration with overgrowth of the oral flora. A common scenario would be postoperative dehydration. Purulent material may be observed.</p> <p>Chronic sialadenitis Chronic sialadenitis, in contrast, is typically less painful and is associated with recurrent enlargement of the gland (often following meals) typically without erythema. The chronic form of the disease is associated with conditions linked to decreased salivary flow, rather than dehydration. These conditions include calculi (sialolithiasis).</p>
65.	<p>A 27 year old man had a fly enter his ear. He is anxious to get the fly removed. What is the SINGLE best method for removal of the fly from his ear?</p> <p>A. Removal with forceps B. Removal under general anaesthesia C. Instill mineral oil into his ear D. Instill alcohol ear drops E. Syringe his ear with normal saline</p>



	<p>Points to remember for foreign bodies in the ear:</p> <ul style="list-style-type: none">• Referral to an ear, nose and throat specialist is indicated in the following:<ul style="list-style-type: none">○ If the patient requires sedation.○ If there is any difficulty in removing the foreign body.○ If the patient is uncooperative.○ If the tympanic membrane has been perforated.○ If an adhesive is in contact with the tympanic membrane.• After removal the tympanic membrane must be checked - there may be a perforation which must be treated.• The following should be avoided:<ul style="list-style-type: none">○ use of a rigid instrument to remove a foreign body from an uncooperative patient's ear○ removal of a large insect without killing it first○ irrigating a seed from an ear canal. Water causes the seed to swell.○ removal of a large or hard object with forceps which may push them farther into the canal• Removal of the foreign body by syringing is not usually successful.• Organic foreign bodies are more likely to cause infection.• Spherical objects need to be hooked out. They cannot be grasped with forceps.• Live insects cause great distress. Drown the insect in olive oil and if necessary then syringe it out.
66.	<p>A 52 year old patient is complaining of vertigo whenever she moves sideways on the bed while lying supine. She would feel as if the room is spinning and she would feel nauseous. This goes away after a few minutes but returns when she moves her head. What is the SINGLE most appropriate next step in management?</p> <p>A. Hallpike's Manoeuvre B. Reassure C. Advice on posture D. Carotid Doppler E. CT head</p> <p>Benign paroxysmal positional vertigo is one of the most common causes of vertigo encountered. It is characterised by the sudden onset of dizziness and vertigo triggered by changes in head position.</p> <p>Presentation:</p> <ul style="list-style-type: none">• Can be preceded by infections• Vertigo on turning over in bed, lying down, or sitting up from supine position• each episode typically lasts 10-20 seconds <p>Diagnosis:</p> <ul style="list-style-type: none">• Hallpike's Manoeuvre positive <p>Treatment:</p>



	<ul style="list-style-type: none">• Mostly spontaneous resolution with exacerbations
67.	<p>A 55 year old man presents with swelling at the angle of the mandible which is progressively increasing in size over the past 6 months. It is painless, firm and mobile. What is the SINGLE most likely diagnosis?</p> <p>A. Benign parotid tumour B. Mandible tumour C. Tonsillar carcinoma D. Parotitis E. Sjögren's syndrome</p> <p>The description of a mobile mass fits a benign parotid tumour such as pleomorphic adenoma. A mandibular tumour or tonsillar carcinoma would not be described as mobile. Parotitis is unlikely as parotitis is described as a painful and tender mass at the angle of the jaw. Sjögren's syndrome does involve parotid gland enlargement and occasional tenderness but no other features of Sjögren's syndrome were given in this stem such as dryness in the eyes or mouth. Therefore benign parotid tumour is still more likely than Sjögren's syndrome.</p> <p>Pleomorphic adenoma</p> <ul style="list-style-type: none">• Also called benign mixed tumour• It is the most common tumour of the parotid gland and causes over a third of submandibular tumours <p>Features</p> <ul style="list-style-type: none">• Presents around middle age• Slow-growing and asymptomatic• Solitary• Painless• Usually mobile• Firm single nodular mass <p>Though it is classified as a benign tumor, pleomorphic adenomas have the capacity to undergo malignant transformation.</p> <p>Treatment involves removing by superficial parotidectomy or enucleation</p>
68.	<p>A 52 year old male with poorly controlled diabetes mellitus presents to his GP with severe pain in the ear and an intense headache. On examination, his skin around the ear is black in colour and there is a foul smelling discharge coming from the ear. He is also noted to have conductive hearing loss. What is the SINGLE most likely diagnosis?</p> <p>A. Carbuncle B. Folliculitis C. Malignant otitis externa D. Cholesteatoma</p>



E. Furuncle

Malignant otitis externa is an aggressive infection rather than a malignancy, or cancer. It is rare. In some cases, the infection can spread to the outer ear and surrounding tissue, including the bones of the jaw and face. Despite the term “malignant” being used, it is NOT cancerous.

Conductive hearing loss and foul-smelling purulent otorrhoea is also one of the features in malignant otitis externa.

Risk factors for malignant otitis externa include diabetes and a weakened immune system.

Without treatment, malignant otitis externa can be fatal.

SAMPLE



SAMPLE



EPIDEMIOLOGY

SAMPLE



1. A study was conducted to evaluate the risk for blindness in a patient with diabetes over a 5-year period. 4 people became blind in Group A which consist of 100 people. 3 people became blind in group B which consisted of 100 people. All participants in group B were given a trial of a new drug whereas group A did not receive any treatment. Given the data above, which statement is correct?
- A. Absolute risk is 1
B. Relative risk is 3
C. Relative risk is 0.75
D. Absolute risk is 0.75
E. Relative risk is 1
- Risk ratios are an important topic in PLAB as it is one of the main epidemiologic questions asked.
- Absolute risk (AR)** of a disease is your risk of developing the disease over a time period. The same absolute risk can be expressed in different ways. For example, say you have a 1 in 10 risk of developing a certain disease in your life. This can also be said to be a 10% risk, or a 0.1 risk - depending on whether you use percentages or decimals.
- Relative risk (RR)** is used to compare the risk in two different groups of people. For example, consider the risk for blindness in a patient with diabetes over a 5-year period. If the risk for blindness is 4 in 100 (4%) in a group of patients treated conventionally (control group) and 3 in 100 (3%) in patients treated with a new drug (experimental group), the relative risk is the ratio of the two risks. Given the data above, the relative risk is:
- $3\% \div 4\% = 75\% \text{ (or } 0.75\text{)}$
- Expressed as a relative difference, the new drug reduces the risk for blindness by a quarter.
- An RR of < 1 means the event is less likely to occur in the experimental group than in the control group.
- An RR of > 1 means the event is more likely to occur in the experimental group than in the control group.
- A good formula to remember for PLAB part 1 is:
- $$\text{RR} = \text{risk of disease in exposed} / \text{risk of disease in unexposed}$$
- In this scenario, it would be:
- $$\text{RR} = \text{risk of blindness in diabetics taking new drug} / \text{risk of blindness in diabetics with no drug}$$



2.	<p>A random study on pulmonary embolism shows 10 patients out of 100 died who did not get treatment and 10 patients out of 100 died who got proper treatment. What is the SINGLE most likely absolute risk?</p> <p>A. Absolute risk 5% B. Absolute risk 2% C. Absolute risk 100% D. Absolute risk 10% E. Absolute risk 0.1%</p> <p>Absolute risk by definition is the percentage of people within a particular group affected by a certain event. Therefore, for both sets of patients who got treatment and those who did not, the absolute risk of death (the event) would be: $10 / 100 = 1/10 = 0.1 = 10\%$.</p>
3.	<p>A group of patients with atherosclerosis are followed forward over a period of time to investigate the outcome according to exposure to different factors. It started with 2 groups free of disease and followed forward for a period of time. What is the SINGLE most likely study design?</p> <p>A. Prospective cohort study B. Retrospective cohort study C. Case control study D. Randomized controlled study E. Prevalence</p> <p>A prospective cohort study assembles participants and follows them into the future.</p>
4.	<p>A town has a population of 500 000. In a 5 year period, 1250 cases of lung cancer were registered by death certification. It was also found in the same town, 500 people were diagnosed with lung cancer from the community hospital. The 1 year survival rate is 0%. What is the SINGLE most likely annual prevalence of lung cancer per million in this population?</p> <p>A. 200 B. 400 C. 500 D. 700 E. 1250</p> <p>In this question, we must figure out the total amount of people affected with lung cancer within the 5 year period first: $1250 + 500 = 1750$. Therefore, annually there are $1750 / 5 = 350$ deaths from lung cancer. This is based on the assumption that the 1 year survival rate is 0% therefore all cases should be accounted for. Since 350 deaths/year is from a population of 500 000, to find out the annual prevalence per million, would be $(350 \times 1\,000\,000) / 500\,000 = 700$ [cross multiply].</p>



5.	<p>Half of a group of observations lies above this level and it is particularly important if the distributions are not normal. What is the SINGLE most likely term?</p> <p>A. Chi-square test B. Linear regression C. Mean D. Median E. Mode</p> <p>Median is the value of the observation that comes half way when the observations are ranked in order.</p>
6.	<p>This is the likelihood of a test reporting positive when the condition being tested is actually present. What is the SINGLE most likely term?</p> <p>A. Null hypothesis B. Prevalence C. Probability D. Sensitivity E. Specificity</p> <p>Sensitivity is a measure of a test's ability to correctly detect people with the disease. It is the proportion of diseased cases that are correctly identified by the test. It is calculated as follows:</p> <p>Sensitivity = Number with disease who have a positive test/Number with disease.</p>
7.	<p>Each year 950 000 people develop myocardial infarction in a population of 250 000 000. Out of these, 215 000 die and 112 500 in the first hour. Which of the following is the SINGLE most likely value for the incidence of myocardial infarction?</p> <p>A. 112 500 in 250 000 000 B. 112 500 in 215 000 000 C. 215 000 in 250 000 000 D. 215 000 in 950 000 E. 950 000 in 250 000 000</p> <p>The definition of incidence is the number of new cases of a disease occurring within a population during a specific time. Therefore, in this question 950 000 people (number of new cases) develop myocardial infarction within a population during a specific time period.</p>



8.	<p>A study was carried out in which 10 000 women participated. All the women underwent a cervical smear. 1000 of 10 000 women had a positive smear. Of these, 100 developed cervical cancer. 10 women who had negative smear developed cancer. What is the SINGLE most likely terminology used to describe the 10 women with negative results who developed cervical cancer?</p> <p>A. Case control study B. False positive C. Chance incidence D. False negative E. Randomized controlled trial</p> <p>A falsely drawn negative conclusion. A conclusion that a person does not have the disease or condition being tested, when they actually do.</p>
9.	<p>A small town has a population of 250,000. In a five year period there was 1,000 cases of lung cancer diagnosed in that town. The neighbouring town also has a population of 250,000 but only 400 people were diagnosed with lung cancer during the five year period. What is the annual incidence per million of lung cancer in the population of both of these towns?</p> <p>A. 2800 B. 1400 C. 700 D. 560 E. 1800</p> <p>Incidence in epidemiology is a measure of the probability of occurrence of a given medical condition in a population within a specified period of time.</p> <p>As the question specifically asked for annual incidence per million, the calculation should be as below:</p> $1000 + 400 = 1400$ $250\,000 + 250\,000 = 500\,000$ <p>There are 1400 people diagnosed with lung cancer in a population of 500 000 in 5 years.</p> $1\,000\,000 / 500\,000 = 2$ $\text{Incidence per million in 5 years} = 2 \times 1400 = 2800$ $\text{Incidence per million in 1 year} = 2800 / 5 = 560$



10.	<p>This is the measure of dispersion of a set of values. What is the SINGLE most likely term?</p> <p>A. Null hypothesis B. Prevalence C. Probability D. Sensitivity E. Standard deviation</p> <p>Standard deviation is a measure of the spread or dispersion of a set of observations, calculated as the average difference from the mean value in the sample.</p>
11.	<p>A new screening test has been devised to detect early stages of prostate cancer. The test has been found to be positive in a high number of patients who are later discovered not to have the cancer on other more definitive testing methods. What is the correct term to describe this test?</p> <p>A. High true positive rate B. High false positive rate C. High true negative rate D. High false negative rate E. High specificity</p> <p>The easiest way to remember this is using the following definitions.</p> <p>True positive is the amount of sick people correctly identified as sick False positives is the amount of healthy people incorrectly identified as sick True negative is the healthy people correctly identified as healthy False negative is the sick people incorrectly identified as healthy</p> <p>High sensitivity means few false negatives Low sensitivity means many false negatives High specificity means few false positives Low specificity means many false positives</p>



SAMPLE



ETHICS



1. A 15 year old girl comes requesting the oral contraceptive pill (OCP). She is sexually active and her sexual partner is also 15 years old. She does not want her parents to know about her sexual relationship with this boy. What is the SINGLE most appropriate action?

A. Breach confidentiality and inform her parents

B. Advise her about safe sex and prescribe OCP

C. Inform her that it is illegal for her to have a sexual relationship with a 15 year old boy

D. Contact the police and local safeguarding officer

E. Inform her that it is illegal to prescribe the pill for her

This question is testing your knowledge on the **Fraser Criteria**.

For the under-16s

GMC guidance states that the duty of confidentiality is the same for children and young people as it is for adults.

Confidentiality may only be breached in order to protect the adolescent or others from serious harm - for example, where issues such as child abuse and child protection are involved, or where required by law. In this situation the adolescent should be informed of the disclosure and the reasons for it.

Guidance also states that 'any competent young person, regardless of age, can independently seek medical advice and give valid consent to treatment'. Note that the ability to consent changes if you are under 13. By law children under 13 are considered unable to consent.

Contraceptive advice or treatment can be provided to a competent young person aged under 16 years, without parental consent or knowledge, using the **Fraser criteria**. A health professional needs to be satisfied that:

- The young person could understand the advice and have sufficient maturity to understand what was involved in terms of the moral, social and emotional implications.
- They could neither persuade the young person to inform the parents, nor to allow the health professional to inform them, that contraceptive advice was being sought.
- The young person would be very likely to begin or to continue having sexual intercourse with or without contraceptive treatment.
- Without contraceptive advice or treatment, the young person's physical or mental health or both would be likely to suffer.
- The young person's best interests required the health professional to give contraceptive advice or treatment or both without parental consent.



2. A 15 year old girl is requesting for oral contraceptive pills (OCP) as she is sexually active. She refuses to tell her parents about her sexual activity and mentions that her partner is a 38 year old man. What is the SINGLE most appropriate action?

A. Breach confidentiality and inform authorities

- B. Advise them about safe sex and prescribe the pill
C. Perform an STI screen
D. Inform her that she can only be prescribed the pill after the age of 16
E. Inform her that she can only be prescribed the pill after the age of 18

Under the Fraser guidelines, a competent young person may be given advice on contraception. However, this man is much older than her. Thus, you would need to share information regarding this and breach confidentiality.

If her sexual partner was of similar age, example 15 years old, and she had the maturity to understand the advice and its implications, you should then advise them about safe sex, prescribe the COCP and do not breach confidentiality.

Breaching confidentiality in sexually active young person

Under the **Fraser guidelines**, you can provide contraceptive, abortion and STI advice and treatment, without parental knowledge or consent, to young people under 16 provided that:

- They understand all aspects of the advice and its implications
- You cannot persuade the young person to tell their parents or to allow you to tell them
- In relation to contraception and STIs, the young person is very likely to have sex with or without such treatment
- Their physical or mental health is likely to suffer unless they receive such advice or treatment, and
- It is in the best interests of the young person to receive the advice and treatment without parental knowledge or consent

However, you should share information about abusive or seriously harmful sexual activity involving any child or young person, including that which involves:

- A young person too immature to understand or consent
- Big differences in age, maturity or power between sexual partners
- A young person's sexual partner having a position of trust
- Force or the threat of force, emotional or psychological pressure,
- Bribery or payment, either to engage in sexual activity or to keep it secret
- Drugs or alcohol used to influence a young person to engage in sexual activity when they otherwise would not
- A person known to the police or child protection agencies as having had abusive relationships with children or young people.



3.	<p>A 15 year old boy in London is brought to the hospital by his parents complaining of lower abdominal pains for the past three days. A clinical suspicion of appendicitis and the decision to admit was made. The young boy refuses to be admitted as he has plans to go out with his friends tonight. He is unable to understand the serious nature of an untreated appendicitis. His parents would like to overrule his wishes and to admit him. What is the SINGLE most appropriate course of action?</p> <p>A. Contact the local safeguarding officer B. Respect his wishes and do not admit C. Involve social services D. Refer for a psychiatric evaluation before admission E. Admit him under parental consent</p> <p>This young boy is under 16. He lacks maturity and is unable to understand the seriousness of his condition. You therefore can rely on parental consent.</p> <p>Capacity to consent</p> <p>The capacity to consent depends more on young people's ability to understand and weigh up options than on age. When assessing a young person's capacity to consent, you should bear in mind that:</p> <ul style="list-style-type: none">- At 16 a young person can be presumed to have the capacity to consent- A young person under 16 may have the capacity to consent, depending on their maturity and ability to understand what is involved. <p>Respect for young people's views is important in making decisions about their care. If they refuse treatment, particularly treatment that could save their life or prevent serious deterioration in their health, this presents a challenge that you need to consider carefully</p> <p>Parents cannot override the competent consent of a young person to treatment that you consider is in their best interests. But you can rely on parental consent when a child lacks the capacity to consent. In Scotland parents cannot authorise treatment a competent young person has refused. In England, Wales and Northern Ireland, the law on parents overriding young people's competent refusal is complex. You should seek legal advice if you think treatment is in the best interests of a competent young person who refuses.</p> <p>Note that the ability to consent changes if you are under 13. By law children under 13 are considered unable to consent.</p>
4.	<p>A 15 year old girl attends the emergency department with mild vaginal bleeding. A pregnancy test is positive. She does not want her parents to know about her pregnancy and she refuses to disclose any information regarding her sexual partner to the healthcare professionals. What is the SINGLE most appropriate management?</p> <p>A. Assess child's competency to make decisions B. Inform her parents</p>



	<p>C. Involve social services D. Inform patient that she is lawfully obliged to provide her partner's name and age E. Contact the police</p> <p>Confidentiality under 16</p> <p>A young person under 16 has the right to advice and treatment without parental knowledge and consent provided that she is competent and understands all aspects of advice and its implications, and cannot be persuaded to tell her parents or to allow you to tell them</p> <p>There are only certain circumstances in which you may disclose information that a young person does not agree to disclose. These are:</p> <ul style="list-style-type: none">- When there is an overriding public interest in the disclosure- When you judge that the disclosure is in the best interests of the young person who does not have the maturity or understanding to make a decision about disclosure- When disclosure is required by law <p>Note that this only applies to children 13 and older. Sexual activity with a child under 13 is a criminal offence and should always result in a child protection referral. You should usually share information about sexual activity involving children under 13, who are considered in law to be unable to consent</p>
5.	<p>A 34 year old woman requests for sterilization. Her last born child has cerebral palsy. Her husband strongly objects to the procedure. What is the SINGLE most appropriate action?</p> <p>A. Provide advice for other modes of contraception B. Proceed with patient wishes and carry out sterilization C. Seek judicial review instructions D. Referral to social services E. No action taken</p> <p>In this case stem, there is no indication that the patient's mental capacity is impaired. Under GMC consent guidelines, "no one else can make a decision on behalf of an adult who has capacity". In addition, it is up to the patient's choice whether to involve their family members or carer in their decision making process. Therefore, you would proceed with the patient's wishes assuming that you have thoroughly explained the procedure, its outcomes and risks and the patient has been fully informed to her full satisfaction.</p>
6.	<p>A 13 year old girl presents to the clinic requesting morning pills. She says the condom she used with her 13 year old boyfriend split into two while having intercourse. What is the SINGLE most appropriate action?</p> <p>A. Inform the police and then give patient contraception B. Inform patient's General Practitioner C. Inform patient's mother and the police immediately D. Give contraception E. Refer patient to another doctor to handle the case</p>



	<p>In this case both the girl and her boyfriend are the same age. Under the GMC, there is no need to inform the police about their sexual activity as they are the same age. If the boyfriend was much older, and thereby have a greater disparity in age to the girl, then informing the police and/or social services would be considered. In this case, you are permitted to provide contraception to the girl without parental knowledge or consent as it is most likely in her best interests to do so according to the GMC.</p>
7.	<p>A healthy 19 year old female, gestational age of 27 weeks, presents to Obstetrics and Gynecology clinic requesting a termination. She says her boyfriend has just left her and that she would not want the baby to remind her of him. The boyfriend, who is currently in jail, has reportedly been assaulting her during their stormy 2 year relationship. What is the SINGLE most appropriate action?</p> <p>A. Terminate fetus via conservative management B. Terminate fetus via dilation and curettage C. Inform police and terminate fetus D. Refusal of termination E. Refusal of termination and inform police</p> <p>Under UK law, the Abortion Act 1967 (amended in 1990) states that termination of pregnancy is legal up to 24 weeks of gestation. Termination over 24 weeks can only be done under special circumstances (i.e. where the continuation of pregnancy would jeopardize the well-being of the mother and/or the birth of the child would result in his/her being seriously handicapped). In this case, the patient is healthy and there is no indication that her current pregnancy is jeopardizing her life nor is the fetus having any serious abnormalities. As such, termination of pregnancy needs to be refused.</p>
8.	<p>A 30 year old female is brought into the Emergency Department by her husband drifting in and out of consciousness following a road traffic accident. She is in shock and requires immediate blood transfusion. Her husband objects saying they are devout Jehovah's Witnesses and are against blood transfusion. Her condition is deteriorating. What is the SINGLE most appropriate action?</p> <p>A. Do not transfuse blood because there is no consent B. Transfuse blood without consent C. Inform health authorities as situation is complicated D. Seek judicial review instructions E. Consult social services</p> <p>In this emergency situation, there are a few reasons why a doctor should be transfusing blood without consent. Firstly, the patient is not conscious enough to make an informed decision pertaining to blood transfusion. Her husband in this case is not permitted to make that decision for her as there is no indication in the case stem that there is an advance directive allowing her husband to do so. Under normal circumstances, most Jehovah's Witnesses would carry a blood refusal card which states that they would refuse blood products under emergency situations. In this case, there is no mention of a blood refusal</p>



	<p>card. Therefore, you would treat this patient just like any other unconscious patient that has entered the Emergency Department until she is able to have capacity to make an informed decision.</p>
9.	<p>A 31 year old Jehovah's Witness was in a car accident and brought into the emergency department. He has lost a massive amount of blood. He is given IV fluids. He is in critical condition and blood products are needed but he refuses any form of blood products due to his religious beliefs. What is the SINGLE most appropriate next step?</p> <p>A. Transfuse blood against his will B. Respect his decision and do not transfuse blood C. Contact the police D. Involve social services E. Seek legal advice</p> <p>Jehovah's Witnesses and Blood transfusion</p> <p>You must respect a competent patient's decision to refuse an investigation or treatment, even if you think their decision is wrong or irrational. You may advise the patient of your clinical opinion, but you must not put pressure on them to accept your advice. You must be careful that your words and actions do not imply judgement of the patient or their beliefs and values.</p> <p>Many Jehovah's Witnesses have strong objections to the use of blood and blood products, and may refuse them even if they may die as a result. Hospital liaison committees established by the Watch Tower Society (the governing body of Jehovah's Witnesses) can advise on current Society policy. They also keep details of hospitals and doctors who are experienced in 'bloodless' medical procedures.</p>
10.	<p>A 17 year old boy is brought into the Emergency Department unconscious following a road traffic accident. What is the SINGLE most appropriate action?</p> <p>A. Resuscitate without consent B. Wait for relatives to consent before beginning resuscitation C. Inform health authorities as situation is complicated D. Seek judicial review instructions E. No action taken</p> <p>As per GMC's ethics guidelines, this case is an emergency. Therefore, we can begin immediately treating the patient without their consent as it is necessary to save their life. Once they have regained capacity within your care, you can inform them of what you have done and ask for them to make ongoing treatment decisions.</p>
11.	<p>A 16 year old boy has lower abdominal pain. A clinical suspicion of acute appendicitis was made and the surgical team has decided to go ahead with an appendectomy. The patient is happy to go ahead with the surgery but his parents refuse to sign the consent form as they are opposed to any form of surgery. The procedure has been explained clearly to the patient</p>



	<p>and his parents and they understand the risk of not going for surgery. What is the SINGLE most appropriate action?</p> <p>A. Cancel the surgery once proper documentation by parents are filled B. Obtain a consent from patient and proceed with surgery C. Contact the local safeguarding officer D. Involve social services E. Contact the police</p> <p>At 16 it is legally presumed that young people have the ability to make decisions about their own care. Note that even children under 16 may have the capacity to consent provided they have the maturity to do so. In this case, the parents are refusing treatment that is clearly in the best interests of a child. It is clear that the child has the maturity and ability to understand what is involved and he is of good age to give consent.</p> <p>Capacity to consent</p> <p>The capacity to consent depends more on young people's ability to understand and weigh up options than on age. When assessing a young person's capacity to consent, you should bear in mind that:</p> <ul style="list-style-type: none">- At 16 a young person can be presumed to have the capacity to consent- A young person under 16 may have the capacity to consent, depending on their maturity and ability to understand what is involved. <p>Respect for young people's views is important in making decisions about their care. If they refuse treatment, particularly treatment that could save their life or prevent serious deterioration in their health, this presents a challenge that you need to consider carefully</p> <p>Parents cannot override the competent consent of a young person to treatment that you consider is in their best interests. But you can rely on parental consent when a child lacks the capacity to consent. In Scotland parents cannot authorise treatment a competent young person has refused. In England, Wales and Northern Ireland, the law on parents overriding young people's competent refusal is complex. You should seek legal advice if you think treatment is in the best interests of a competent young person who refuses.</p> <p>Note that the ability to consent changes if you are under 13. By law children under 13 are considered unable to consent.</p>
12.	<p>A 30 year old man is found to be HIV positive and is against condom use. After discussing with him, he is still refusing to accept the need to tell his wife of his diagnosis. What is the SINGLE most appropriate action</p> <p>A. Inform the police B. Do not inform the police C. Inform health authorities D. Consult with social services</p>



	<p>E. Notify wife via partner notification programme</p> <p>In the UK, there are partner notification services for those diagnosed with sexually transmitted infections (STI) and/or HIV. This service's main aim is to inform unsuspecting partners of those infected of the possibility of being infected with STI/HIV and to seek medical care. Under normal circumstances, the patient affected is offered a choice: to inform their partner(s) themselves or to provide details of those partner(s) to the healthcare worker to contact them anonymously. Usually, it is a mix of the above where the patient is given a time frame to inform their partner(s) and if not done by that set date, the healthcare worker will be the one to inform. In this case, the man refuses to tell his wife the diagnosis. As this is a communicable disease, the wife needs to be informed as she will need to be tested. Therefore, you would contact her via protocols of the partner notification programme.</p>
13.	<p>You are treating a general surgeon for Hepatitis B. You ask him to inform the NHS trust where he is currently working and he refuses. What is the SINGLE most appropriate action?</p> <p>A. Respect the patient's confidentiality and do not inform the health authorities B. Inform the health minister C. Inform the relevant health authorities D. Seek judicial review instructions E. Try to convince patient and ask for consent again</p> <p>Under GMC guidelines, it is the duty of a healthcare worker to report whether he or she has a serious communicable disease. If they do not, then you as their doctor must report it to the relevant health authorities as they can put the patients they are treating at risk.</p>
14.	<p>A 37 year old female who was recently diagnosed with multiple sclerosis took 100 tricyclic antidepressant tablets. She is now refusing all treatment. What is the SINGLE most appropriate action?</p> <p>A. Immediate arterial-blood gas analysis B. Observe C. Activated charcoal D. IV sodium bicarbonate E. Refer to psychiatrist to evaluate capacity</p> <p>The GMC framework's guidance on capacity seeks to preserve patient autonomy above all else. Some important points include:</p> <ul style="list-style-type: none">- You must assess a patient's capacity to make a particular decision at the time it needs to be made. You must not assume that because a patient lacks capacity to make a decision on a particular occasion, they lack capacity to make any decisions at all, or will not be able to make similar decisions in the future.- If your assessment leaves you in doubt about the patient's capacity to make a decision, you should seek advice from:<ul style="list-style-type: none">o nursing staff or others involved in the patient's care, or those close to the patient, who may be aware of the patient's usual ability to make decisions and their particular communication needs



	<ul style="list-style-type: none">○ colleagues with relevant specialist experience, such as psychiatrists, neurologists, or speech and language therapists.- If you are still unsure about the patient's capacity to make a decision, you must seek legal advice with a view to asking a court to determine capacity.
15.	<p>A 45 year old man is found to be HIV positive in a Genitourinary Medicine clinic. He is not sexually active. He does not want his GP informed about his diagnosis as he has witnessed a friend who suffered discrimination following accidental disclosure of his HIV status. What is the SINGLE most appropriate action?</p> <p>A. Accept patient's decision not to inform GP B. Explain the legal and ethical duties of confidentiality to the patient and inform his GP C. Explain to the patient that it is the patient's duty by law to inform his GP D. Inform his GP when his viral load is below 500 copies/mL E. Inform his GP only when anti-viral medications are started</p> <p>The patient's decision must be respected unless there is an overriding public interest in disclosing the information without his consent. A HIV positive patient may not need to reveal his diagnosis to the GP. He may obtain his anti-viral treatments from the GUM clinic.</p> <p>One may strongly encourage the patient to consent, explaining the clear benefits of informing his GP of his status, and seek to reassure him about his GP's legal and ethical duty of confidentiality but you are not able to inform the GP unless the patient gives you permission to.</p>
16.	<p>A 15 year old girl comes in with her 15 year old boyfriend requesting for oral contraceptive pills (OCP). They are sexually active. They could not be persuaded to inform their patients about their sexual relationship or that contraceptive advice was being sought. What is the SINGLE most appropriate action?</p> <p>A. Breach confidentiality and inform parents B. Advise them about safe sex and prescribe the pill C. Contact the police and local safeguarding officer D. Inform her that she can only be prescribed the pill after the age of 16 E. Inform her that she can only be prescribed the pill after the age of 18</p> <p>This question is testing your knowledge on the Fraser Criteria.</p> <p>For the under-16s</p> <p>GMC guidance states that the duty of confidentiality is the same for children and young people as it is for adults.</p> <p>Confidentiality may only be breached in order to protect the adolescent or others from serious harm - for example, where issues such as child abuse and child protection are</p>



	<p>involved, or where required by law. In this situation the adolescent should be informed of the disclosure and the reasons for it.</p> <p>Guidance also states that 'any competent young person, regardless of age, can independently seek medical advice and give valid consent to treatment'. Note that the ability to consent changes if you are under 13. By law children under 13 are considered unable to consent.</p> <p>Contraceptive advice or treatment can be provided to a competent young person aged under 16 years, without parental consent or knowledge, using the Fraser criteria. A health professional needs to be satisfied that:</p> <ul style="list-style-type: none">- The young person could understand the advice and have sufficient maturity to understand what was involved in terms of the moral, social and emotional implications.- They could neither persuade the young person to inform the parents, nor to allow the health professional to inform them, that contraceptive advice was being sought.- The young person would be very likely to begin or to continue having sexual intercourse with or without contraceptive treatment.- Without contraceptive advice or treatment, the young person's physical or mental health or both would be likely to suffer.- The young person's best interests required the health professional to give contraceptive advice or treatment or both without parental consent.
17.	<p>An armed robber is injured during an exchange of gunfire with the police and comes to the Emergency Department. He requests your silence. What is the SINGLE most appropriate action?</p> <p>A. Inform the police without revealing patient's personal information B. Do not inform the police C. Consult with seniors of the NHS trust D. Consult with social services E. Inform the health minister</p> <p>Under GMC guidelines, any person arriving into the hospital with a gunshot wound needs to be reported to the police. The reasoning behind this is to ensure the safety of the patient, the medical staff, the patients and visitors within the hospital, as well as to prevent another attack. It is important to note that the incident of the gunshot wound is to be reported initially and not necessarily the personal details of the armed robber.</p> <p>Personal information, such as the patient's name and address, should not usually be disclosed in the initial contact with the police. The police will respond even if the patient's identity is not disclosed. The police need to be informed quickly in order to respond to the risk to patients, staff and the public. They also need statistical information about the number of gunshot and knife injuries, and when and where they occur, to inform their own and their crime reduction partners' operational and strategic priorities.</p>



18.	<p>A 34 year old man with multiple sclerosis has taken an overdose of more than 50 tablets of paracetamol with the intent to end his life. He has been brought to the emergency department by his wife. He is refusing all interventions. What is the SINGLE most appropriate action?</p> <p>A. Assess his glasgow coma scale B. Evaluate his mental capacity to refuse treatment C. Establish if patient has any previous mental illness D. Attain consent from his wife to give treatment E. Admit but do not provide any intervention</p> <p>This patient has multiple sclerosis. The first thing to do if he is refusing treatment is to evaluate his mental capacity to do so.</p>
19.	<p>A 15 year old girl is brought to the hospital by her parents with mild lower abdominal pain. An ultrasound scan reveals a large ovarian cyst. The decision for a laparoscopic ovarian cystectomy has been made but she refuses treatment. She understands the consequences of not having the surgery and is deemed competent. Her parents ask if they can override her decision and sign the consent form on her behalf. What is the SINGLE most appropriate action?</p> <p>A. Seek legal advice B. Obtain a consent from parents and carry out the surgery C. Obtain a consent from two consultant gynaecologist and carry out the surgery D. Contact social services E. Cancel the surgery and respect patient's wishes</p> <p>Remember to note these few points in the stem that would help you answer your question</p> <ol style="list-style-type: none">1. The case above is not an emergency and you have time to seek legal advice2. She is deemed competent even though she is below 16 years old <p>Capacity to consent</p> <p>The capacity to consent depends more on young people's ability to understand and weigh up options than on age. When assessing a young person's capacity to consent, you should bear in mind that:</p> <ul style="list-style-type: none">- At 16 a young person can be presumed to have the capacity to consent- A young person under 16 may have the capacity to consent, depending on their maturity and ability to understand what is involved. <p>Respect for young people's views is important in making decisions about their care. If they refuse treatment, particularly treatment that could save their life or prevent serious deterioration in their health, this presents a challenge that you need to consider carefully</p>



	<p>Parents cannot override the competent consent of a young person to treatment that you consider is in their best interests. But you can rely on parental consent when a child lacks the capacity to consent. In Scotland parents cannot authorise treatment a competent young person has refused. In England, Wales and Northern Ireland, the law on parents overriding young people's competent refusal is complex. You should seek legal advice if you think treatment is in the best interests of a competent young person who refuses.</p> <p>Note that the ability to consent changes if you are under 13. By law children under 13 are considered unable to consent.</p>
20.	<p>An 85 year old woman with Alzheimer's disease wants to change her will. Her granddaughter is refusing as she says that her grandmother does not know what she is saying since she is suffering from dementia. What is the SINGLE best action for you to take?</p> <p>A. Allow her to change her will B. Refuse her as she has no capacity C. Refer for assessment of capacity D. Her granddaughter is her caretaker and therefore can consent for her E. Allow her to change her will after 3 months</p> <p>Referring the patient for assessment of her capacity is the best possible choice out of the given choices. A safe answer for PLAB 1 exam ethics questions is always discussing and exploring patient concerns.</p> <p>Allowing her to change her will would be the correct choice if she wasn't diagnosed with Alzheimer's disease. Patient autonomy is the founding principal of U.K medical practice and we should always endeavor to maintain patient autonomy at all times.</p> <p>Refusing her to change her will is the incorrect choice because without an evaluation of whether she has capacity or not, this would be a violation of the U.K code of ethics.</p> <p>There was no mention in the stem that her granddaughter is indeed her caretaker, and even if her granddaughter was her caretaker, important decisions that impact on the patient cannot be undertaken by a caretaker without a power of attorney document (which also was not mentioned in the stem).</p> <p>The Mental Capacity Act of 2005 seeks to empower and protect people who may not be able to make some decisions for themselves. It also enables people to plan ahead in case they are unable to make important decisions for themselves in the future. The law works on the principle that everyone is assumed to have capacity to make decisions for themselves if they are given enough information, support and time. It protects their right to make their own decisions and to be involved in any decisions that affect them. A person's capacity must be judged according to the specific decision that need to be made, and not solely because of their illness, disability, age, appearance or behaviour. An important principle in the law is that just because someone is making what seems to be an unwise decision (even if they have an illness or disability) this does not necessarily mean they lack capacity.</p>



21.	<p>A 49 year old HIV positive man has been responding well to Highly Active Antiretroviral Therapy (HAART) which he obtains from the Genitourinary Medicine clinic. He is due for an elective orthopaedic surgery. He has not disclosed his HIV status to the orthopaedic surgeon and wishes that his HIV status remains undisclosed. What is the SINGLE most appropriate action in regards to his HIV status?</p> <p>A. Accept patient's decision not to inform the orthopaedic surgeon about his HIV status B. Inform the orthopaedic surgeon about his HIV status C. Inform the orthopaedic surgeon that a patient with a blood blood-borne virus is booked in for surgery on the day, without disclosing patient's identity D. Inform his orthopaedic surgeon if his viral load is below 500 copies/mL E. Explain to the patient that it is the patient's duty by law to inform his surgeon</p> <p>This is a difficult question and a very debatable one but one should know about confidentiality for PLAB. Majority of physicians would either answer A or E. However, after much debate and much research, we believe the answer would still remain as A.</p> <p>The patient's decision must be respected unless it would put the health care workers at risk of infection. For example, in the event of a needlestick or similar injury to a healthcare worker, disclosure of his status is needed.</p> <p>Contacting the surgeon to say a patient with a blood-borne virus is booked in on the day for which patient's operation is planned would not necessarily be a breach of confidence, but it would not be a sensible course of action. It might lead to disclosure of the patient's status. If for example, he was the only person booked in for surgery on that day, or if he changed the date of his operation.</p>
22.	<p>A mother brings her 12 year old son to you requesting surgery for his sticking out ears. She says that he is constantly teased in school because of his ears and wants him to undergo cosmetic surgery for it. The boy says he does not want surgery. What is the SINGLE most appropriate action?</p> <p>A. Refer to private practice B. Schedule surgery as his consent is not needed C. Contact social services and explore their concerns D. Explain to mother that surgery is not possible without her son's consent E. Discuss the situation with your colleagues</p> <p>The topic of consent is extremely important for the PLAB exam as well as practice in the NHS. In terms of U.K law, a person aged 16 and upward is generally considered to have capacity and is able to consent for their own medical procedures. A child is also able to consent provided they are competent in understanding the situation. This is called Gillick competence. In the above situation, the best choice is to contact social services and assess the boy's capacity to make his own decision. Surgery is a major procedure and this child should not be subject to undergo a potentially life-threatening procedure that he doesn't need just because his caregiver wishes him to.</p>



	<p>Scheduling the surgery as his consent is not needed would be the correct answer IF this was an emergency procedure that the child needed in order to survive. In those conditions, parental consent would overrule the child's wishes as the procedure would be in the best interests of the child.</p> <p>Not performing the surgery since the boy has not given consent cannot be chosen blindly without exploring whether the child has capacity or not. A safe answer for PLAB exam ethics questions is always discussing and exploring patient concerns.</p>
23.	<p>You are a junior doctor working in the NHS. You suspect one of your colleagues to be under the influence of recreational drugs. What is the SINGLE most appropriate action to be taken?</p> <p>A. Inform police B. Confront your colleague directly C. Inform the senior consultant D. Seek for more evidence first E. Report to the trust manager</p> <p>This is the best choice out of the given choices. In PLAB 1 ethics questions, it is always safe to discuss and explore concerns.</p> <p>The GMC's ethical guidance outlines state that:</p> <ul style="list-style-type: none">- You should understand the difference between a personal grievance, that is a complaint about your own employment situation, and a concern about a risk, malpractice or wrongdoing that affects others. This is particularly important if patients or members of the public are at risk of harm- You should be aware that poorly performing colleagues may have health problems and respond constructively where this is the case.- You should encourage such colleagues to seek and follow professional advice and offer them appropriate help and support.- You must not unfairly discriminate against colleagues because of an issue related to their health or a disability.- You should, as far as possible, support colleagues who are experiencing performance problems. But, in all cases, you should remember your duty to raise concerns where you believe a colleague may not be fit to practise or may otherwise pose a risk of serious harm to patients.
24.	<p>You are the SHO in psychiatry. Your consultant is having a sexual relationship with a widowed patient that is currently being treated for depression. The lady's condition is much improved and is awaiting discharge next week. What is the SINGLE most appropriate action?</p> <p>A. Inform health minister as situation is complicated B. Inform police and then give her contraception C. Report him to trust manager as per hospital protocol D. Inform the patient's family members E. Do not take action</p>



	<p>As per GMC ethical guidance, as a medical professional, one must not “pursue a sexual or improper emotional relationship with a patient or someone close to them”. In this instance, you must report the incident to the appropriate seniors in your hospital as per hospital protocol to investigate the allegation. Police would only be involved if you suspect that the consultant has committed sexual assault or other criminal activity towards the patient.</p>
25.	<p>A 55 year old woman has recently been diagnosed with multiple sclerosis and has been started on oral steroids. She is brought to the hospital after having ingested more than 40 tablets of paracetamol 3 hours ago. She is refusing all medical treatment as she wants to end her life. What is the SINGLE most appropriate action?</p> <p>A. Admit and observe but do not provide any intervention B. Refer to psychiatrist to assess patients ability to refuse treatment C. Gastric lavage D. Activated charcoal E. Refer to social worker</p> <p>This patient has multiple sclerosis. The first thing to do if he is refusing treatment is to evaluate her mental capacity to do so.</p>
26.	<p>A man with dementia has an ulcerative lesion on his forehead. He wants it removed so ‘it can help improve his memory’. His wife says he is not fit to give consent. What is the SINGLE most appropriate action?</p> <p>A. Remove the lesion after obtaining written consent from the patient B. Document finding but do not remove lesion C. Refer to GP for further assessment of lesion D. Refer to psychiatrist to assess the mental capacity to give consent E. Review in 6 weeks</p> <p>This question is very straightforward. He is in no position to give consent and so a psychiatrist should review his mental capacity.</p>
27.	<p>A 15 year old girl had unprotected sex with her 38 year old boyfriend and is now requesting for the morning pill. What is the SINGLE most appropriate action?</p> <p>A. Inform the police and give contraception B. Do not inform police and give contraception C. Inform parents and give contraception with their consent D. Do not inform parents and give contraception E. Consult with social services</p> <p>The age discrepancy between the girl and her boyfriend, under GMC guidelines, is seen as the boyfriend being able to be of greater influence and power over the girl. As such, this would be considered a case of sexual abuse and needs to be reported to the police. Consultation from social services would also be considered; however, the priority here is to inform the police first. You would also provide contraception as requested by the girl as she is of mental capacity to make an informed decision over treatment and under GMC</p>



	<p>guidelines, you would not be obligated to inform or gain consent from her parents for doing so. However, you would advise the girl that it would be in her best interests to discuss with her parents.</p>
28.	<p>A 33 year old pregnant woman is in labour at 40 weeks gestation. The emergency bell was rung by the midwife in the labour room as the cardiotocograph shows fetal bradycardia for the past 5 minutes that has not recovered. A quick decision to go for an emergency C-section is made however she is unable to consent as she speaks only Tigrinya and cannot understand English. Her partner is not in the hospital with her. Attempts have been made to contact the language line but at present they are unable to obtain a Tigrinya translator. What is the SINGLE most appropriate action?</p> <p>A. Wait until a translator becomes available before performing the C-section B. Proceed to perform a C-section C. Seek legal advice D. Contact next of kin by telephone E. Do not proceed with C-section until patient can fully understand and signs consent form written in Tigrinya language</p> <p>GMC is clear that doctors must have consent before carrying out any treatment. However, in an acute emergency like in this stem, the importance of saving the fetus' life outweighs this. It would be considered wrong not to act on a fetal bradycardia on the basis that the mother is unable to understand the language. Waiting for a translator may put the fetus' life at risk. Fetal bradycardia is an acute emergency and obstetricians are trained to get baby out by C-section within 60 seconds of skin incision. No time should be wasted trying to seek legal advice or contacting the next of kin.</p> <p>Furthermore, the mother has not refused a C-section, she is merely unable to understand the language. In the absence of a clear expression of her wishes, you may act and provide appropriate treatment and prevent serious detriment to the baby.</p>
29.	<p>A 32 year old woman is brought in unconscious by the ambulance after receiving the news that she has terminal breast cancer earlier in the day. She is suspected of having taken an overdose of benzodiazepines. She was found by her boyfriend with an empty bottle of tablets beside her with a note declaring that she wishes to end her life. The note specifically says that she does not want any treatment. What is the SINGLE most appropriate action?</p> <p>A. Respect her wishes and do not treat B. Wait for consciousness to obtain consent for treatment C. Obtain verbal consent from her boyfriend regarding the decision to treat D. Treat her with attempts to save her live despite not having a consent E. Contact her parents to obtain consent to treat</p> <p>The question here is how binding is the note that states she is refusing treatment. To be valid and legally binding under the Mental Capacity Act 2005 (England and Wales), an advance decision refusing treatment must state exactly what treatment is being refused and in what circumstances. A suicide note in most situations is NOT a valid advance decision.</p>



	<p>Decisions refusing life-sustaining treatment must be in writing and include a clear and specific statement that it applies even if the patient's life is at risk. It is unlikely that the note fulfills all these criteria. The document must also be signed and witnessed which in this stem is not.</p>
30.	<p>A 33 year old man is brought into the Emergency Department having been involved in a fight outside a local pub. During the fight, he was hit on the head by a metal chair. On examination, there is a open laceration on his head and he has sustained cuts and bruises on his arms and legs. He also smells of alcohol. He was initially uncooperative before losing consciousness. What is the SINGLE most appropriate action?</p> <p>A. Proceed to investigate and treat the patient without his consent B. Wait till he regains consciousness to obtain consent C. Investigate only without treating the patient D. Treat only if his observations are unstable E. Seek legal advice</p> <p>GMC is clear that doctors must have consent before carrying out any examination, investigation, or providing treatment. However, it is likely that the patient initially refusal was due to his condition rather than the fact that he was refusing consent for investigations and treatment. As the patient has sustained a head injury it is not practical to wait until he is sober before obtaining a consent as his life could be at risk. Neither is it appropriate to seek legal advice in an acute situation like this. Remember, he could be acutely deteriorating and early detection is vital. In the absence of a clear expression of his wishes, you may act and provide appropriate treatment and prevent a serious deterioration of his condition.</p>
31.	<p>A 33 year old man is extremely thankful for your service and for assisting in his laparoscopic appendicectomy. He offers you a valuable clock as a gift. What is the SINGLE most appropriate action?</p> <p>A. Accept it with gratitude B. Accept it with a condition that it will be sold and money used on improvements of services in the ward C. Ask him to donate it to the ward D. Refuse the gift and inform him that doctors are unable to accept valuable gifts from patients E. Accept it and donate it to charity</p> <p>It may be entirely reasonable to accept a small token of appreciation from a patient. In fact, refusing it may cause embarrassment that could unnecessarily harm the relationship between a doctor and a patient. But gifts of money or items of high financial value raise contractual and ethical issues that doctors need to consider.</p> <p>The GMC states that doctors must not accept gifts from patients, or colleagues, if it is an inducement, gift or hospitality that may affect or be seen to affect the way that person is</p>



	<p>treated. Gifts with considerable value may alter the dynamic between the doctor and patient such that the patient may receive or expect to receive preferential treatment.</p> <p>What is considered valuable? A gift that is valued £100 or more.</p> <p>The Social Care Bill (2000) legislated that gifts over £100 in value should be declared.</p> <p>Explaining to the patient that receiving such an expensive gift would not be in keeping with the guidance set by the General Medical Council,</p> <p>The first action should always be refusing the gift. If this fails and the patient insist on giving, then you can suggest other options like giving it to charity or to the ward fund.</p>
32.	<p>A 48 year old man recently had a transient ischaemic attack. What advice on driving would you give him?</p> <p>A. Continue to drive only when accompanied by another person B. Continue to drive without any restrictions C. Drive on the familiar roads and avoid busy roads D. Stop driving completely E. Do not drive for at least one month</p> <p>You must stop driving for at least 1 month after a transient ischaemic attack (TIA). You can be fined up to £1,000 if you do not tell DVLA about a medical condition that affects your driving.</p>
33.	<p>A 14 year old girl presents to the clinic requesting oral contraceptives. She is sexually active with her 15 year old partner. What is the SINGLE most appropriate action?</p> <p>A. Inform the police B. Refer to social services C. Consult another doctor as you need a second opinion to prescribe oral contraceptives D. Prescribe oral contraceptive pills and advise her to involve her parents in her decision E. Assess both her mental capacity and her partner's mental capacity</p> <p>In this case both the girl and her boyfriend are roughly the same age. Under the GMC, there is no need to inform the police about their sexual activity as they are of similar age. If the boyfriend was much older, and thereby have a greater disparity in age to the girl, then informing the police and/or social services would be considered. In this case, you are permitted to provide contraception to the girl without parental knowledge or consent as it is most likely in her best interests to do so according to the GMC.</p> <p>Encouraging her to inform her parents is another point that a good practitioner would do.</p>



34.	<p>You are a junior doctor eating with a few friends in a restaurant. On leaving the restaurant, you notice an empty table with patient's medical notes. The table has been unattended for a while. What is the SINGLE most appropriate action?</p> <p>A. Request that the restaurant manager call the hospital B. Look through the medical notes and attempt to phone the patient C. Look through the medical notes for a general practitioners contact and inform the practice D. Take the medical notes to the hospital E. Ignore the incident and walk out of the restaurant</p> <p>Informing the GP practice would be the most practical option. The GP surgery would have all the records of the patient and they would be able to advise you what you need to do with the notes. It may be possible that the GP surgery would ask you to bring the notes into the practice and they will keep it securely or scan a copy to the hospital if needed.</p> <p>The second most appropriate option is to bring the notes to the hospital. This is inconvenient as great efforts and time would be needed to find the department that this patient attended.</p>
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SAMPLE



SAMPLE



GASTROENTEROLOGY

SAMPLE



1.

A 23 year old female presents with an 8 week history of bloody diarrhoea. She says her bowels have not been right for the past few months and she frequently has to run to the toilet. A diagnosis of ulcerative colitis is made. What is the SINGLE most likely sign to be seen on a barium enema?

A. Loss of haustral markings

- B. Kantor's string sign
- C. Cobblestone appearance
- D. Rose thorn ulcers
- E. Fistula

Loss of haustration is pathognomonic for Ulcerative Colitis. Cobblestone appearance is seen on an endoscopy in Crohn's disease. Kantor's string sign, rose thorn ulcers, and fistulae are seen on a small bowel enema in Crohn's disease.

It is important to know the differences of ulcerative colitis and crohn's disease for PLAB as it is very commonly asked.

These are some key differences that will help you with your exam:

Crohn's disease	Ulcerative colitis
Usually non bloody	Bloody diarrhoea more common
Abdominal mass palpable in right iliac fossa	Abdominal pain in left lower quadrant
Increased goblet cells on histology	Decreased goblet cells on histology
Granulomas seen on histology	Granulomas are infrequent on histology
Weight loss more prominent	Primary sclerosing cholangitis more common
Transmural, skip lesions, cobble stone appearance on endoscopy	Aphthous oral ulcers
	Loss of haustration, drain pipe collon seen on barium enema



2. A 42 year old man with type 2 diabetes presents with fatigue and shortness of breath. He is noted to have a bronze tinge to his skin. Abdominal examination reveals hepatomegaly. His blood test show a high ferritin level. A diagnosis has been made but he is refusing all treatment. Which organ is the most likely to be at risk of developing cancer?

- A. Testes
- B. Adrenal gland
- C. Liver**
- D. Pancreas
- E. Heart

The diagnosis here is haemochromatosis. The liver is a primary storage area for iron and will naturally accumulate excess iron. Over time the liver is likely to be damaged by iron overload causing cirrhosis. Cirrhosis and haemochromatosis together will increase the risk of hepatocellular carcinoma.

Haemochromatosis

Hereditary haemochromatosis (HHC) is an autosomal recessive genetic disease in which increased intestinal absorption of iron causes accumulation in tissues, especially the liver, which may lead to organ damage. Other organs that may be affected by iron deposits include the pancreas, joints, heart, skin and gonads.

Presentation

- Early diagnosis is difficult because HHC is often asymptomatic until the late stages of disease. Symptoms usually start between ages 40-60
- Initial symptoms are usually vague and nonspecific - eg, fatigue, weakness and heart problems
- HHC may be diagnosed incidentally - eg, following abnormal serum ferritin or LFTs
- Symptoms of advanced disease include:
 - Diabetes
 - Bronzing of the skin
 - Hepatomegaly
 - Cirrhosis
 - Arthropathy
 - Cardiac disease - arrhythmias or cardiomyopathy
 - Neurological or psychiatric symptoms - impaired memory, mood swings, irritability, depression

Remember the triad of diabetes, hepatomegaly and bronze pigmentation. This is seen in 30% of patients with haemochromatosis and is a common presentation given in the questions.



3. A 28 year old female presents with 1 week history of jaundice, fever and malaise. She was diagnosed with hypothyroidism for which she is receiving levothyroxine. Her blood tests show:

Serum bilirubin 40 $\mu\text{mol/L}$
Alanine transferase (ALT) 120 iu/L
Aspartate transaminase (AST) 90 iu/L
Alkaline phosphatase (ALP) 200 iu/L
Prothrombin time (PT) 25 sec

What is the SINGLE most likely diagnosis?

- A. Acute on chronic liver failure
- B. Hyperacute liver failure
- C. Autoimmune hepatitis**
- D. Acute liver failure
- E. Drug induced hepatitis

In autoimmune hepatitis, serum aminotransferases: aspartate aminotransferase (AST) and alanine aminotransferase (ALT) are usually elevated at initial presentation. Serum alkaline phosphatase is normal or only mildly raised. A more than two-fold elevation suggests an alternative or additional diagnosis. Hypoalbuminaemia and prolongation of prothrombin time are markers of severe hepatic synthetic dysfunction.

These lab test do not rule out other liver diseases but given the combination of the presence of another autoimmune disease like hypothyroidism, the most likely diagnosis here is autoimmune hepatitis.

Autoimmune hepatitis

Autoimmune hepatitis (AIH) is a chronic disease of unknown cause, characterised by continuing hepatocellular inflammation and necrosis, which tends to progress to cirrhosis.

- Predominantly affects young or middle-aged women
- Up to 40% present with acute hepatitis and signs of autoimmune disease, eg fever, malaise, urticarial rash, polyarthritis, pleurisy, pulmonary infiltration, or glomerulonephritis. The remainder present with gradual jaundice or are asymptomatic and diagnosed incidentally with signs of chronic liver disease. Amenorrhoea is common and disease tends to attenuate during pregnancy.

Investigations:

The diagnosis rests on a combination of compatible biochemical, immunological and histological features together with exclusion of other liver diseases.

Associated diseases



	Concurrent autoimmune disorders occur in approximately 40% of patients, particularly autoimmune thyroid disorder.
4.	<p>A 35 year old female presents with secondary amenorrhoea. Her blood test show the following:</p> <p>Serum bilirubin 42 $\mu\text{mol/L}$ Alanine transferase (ALT) 115 iu/L Aspartate transaminase (AST) 89 iu/L Alkaline phosphatase (ALP) 189 iu/L</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Primary sclerosing cholangitis B. Autoimmune hepatitis C. Primary biliary cirrhosis D. Acute liver failure E. Gilbert's syndrome</p> <p>The combination of deranged LFTs combined with secondary amenorrhoea in a young female strongly suggest autoimmune hepatitis.</p> <p>In autoimmune hepatitis, serum aminotransferases: aspartate aminotransferase (AST) and alanine aminotransferase (ALT) are usually elevated at initial presentation. Serum alkaline phosphatase is normal or only mildly raised. A more than two-fold elevation suggests an alternative or additional diagnosis.</p> <p>Occasionally, the stem would include a form of another autoimmune disease such as addison's disease, vitiligo, or an autoimmune thyroid disorder as this may be present with autoimmune hepatitis.</p> <p>Autoimmune hepatitis</p> <p>Autoimmune hepatitis (AIH) is a chronic disease of unknown cause, characterised by continuing hepatocellular inflammation and necrosis, which tends to progress to cirrhosis.</p> <ul style="list-style-type: none">• Predominantly affects young or middle-aged women• Up to 40% present with acute hepatitis and signs of autoimmune disease, eg fever, malaise, urticarial rash, polyarthritis, pleurisy, pulmonary infiltration, or glomerulonephritis. The remainder present with gradual jaundice or are asymptomatic and diagnosed incidentally with signs of chronic liver disease. Amenorrhoea is common and disease tends to attenuate during pregnancy. <p>Investigations:</p> <p>The diagnosis rests on a combination of compatible biochemical, immunological and histological features together with exclusion of other liver diseases.</p>



	<p>Associated diseases</p> <p>Concurrent autoimmune disorders occur in approximately 40% of patients, particularly autoimmune thyroid disorder.</p>
5.	<p>A 42 year old obese female has severe upper abdominal pain. She vomited several times today. She has a temperature of 37.8°C. She is married and has 5 living children. She has no previous surgeries. Her blood count shows:</p> <p>Haemoglobin 123 g/L White cell count 17.3 x 10⁹/L Platelets 150 x 10⁹/L</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Ectopic pregnancy B. Ovarian torsion C. Hepatitis D. Endometriosis E. Cholecystitis</p> <p>Remember the mnemonic for gallstones: 5Fs: Female, Forties, Fair, Fertile, Fat</p> <p>Acute cholecystitis</p> <p>Acute cholecystitis follows stone or sludge impaction in the neck of the gallbladder, which may cause continuous epigastric or RUQ pain (referred to the right shoulder), vomiting, fever, local peritonism, or a gallbladder mass.</p> <p>The main difference from biliary colic is the inflammatory component (local peritonism, fever, and elevated WCC).</p> <p>If the stone moves to the common bile duct (CBD), obstructive jaundice and cholangitis may occur</p> <p>Murphy's sign is positive when you lay 2 fingers over the RUQ and ask patient to breathe in which causes pain & arrest of inspiration as an inflamed gallbladder impinges on your fingers. It is only positive if the same test in the LUQ does not cause pain.</p> <p>Tests:</p> <p>WCC would be elevated Ultrasound shows a thick-walled, shrunken gallbladder</p> <p>Management:</p> <p>Nil by mouth, pain relief, IV fluids, and antibiotics.</p>



	<p>Once symptoms settle, do a laparoscopic cholecystectomy. Laparoscopic cholecystectomy is the treatment of choice for all patients fit for general anaesthesia. Open surgery is required if there is gall bladder perforation.</p>
6.	<p>A 48 year old woman has become increasingly fatigued over the past 10 months. Vitiligo of the hand was noted. Her blood tests show:</p> <p>Haemoglobin 88 g/L White cell count $8 \times 10^9/L$ Platelets $245 \times 10^9/L$ Mean cell volume 130 fL</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Folate Deficiency B. Thalassemia minor C. Pernicious anaemia D. Anaemia of chronic disease E. Sickle cell anaemia</p> <p>The mean cell volume is increased. This points towards either a B12 deficiency or folate deficiency.</p> <p>Pernicious anaemia is one of the causes of a B12 deficiency and it may coexist with other autoimmune disease such as vitiligo. Note that hypothyroidism is also another coexisting autoimmune disease to look out for.</p> <p>B12 deficiency</p> <p>Vitamin B12 is found in meat, fish, and dairy products, but not in plants. Body stores are sufficient for 4 years.</p> <p>B12 then binds to intrinsic factor in the stomach, and this complex is absorbed in the terminal ileum.</p> <p>Clinical presentation</p> <ul style="list-style-type: none">• Symptoms are those of chronic anaemia, i.e. fatigue, dyspnoea on effort• Neurological symptoms may also be present → classically peripheral paresthesia and disturbances of position and vibration sense• If uncorrected, the patient may develop subacute combined degeneration of the spinal cord leading to permanent ataxia <p>Causes of B12 deficiency:</p> <ul style="list-style-type: none">• Pernicious anaemia → Commonest cause. It is due to autoimmune gastric atrophy resulting in loss of intrinsic factor production required for absorption of B12. It is usually associated with other autoimmune problems e.g. hypothyroidism



	<ul style="list-style-type: none">• Dietary (e.g. vegans)• Following total gastrectomy• Ileal disease → Resection of ileum, Crohn's disease• Malabsorption disorders → Coeliac disease, tropical sprue <p><i>In PLAB, one distinction that may help you choose between B12 and folate deficiency is the diet. Good food sources of folate include broccoli, brussels sprouts, asparagus, peas (basically vegetables). Thus if the given scenario is a vegetarian, it is unlikely that he is suffering from folate deficiency. In that case, pick B12 deficiency.</i></p> <p>Haematological abnormalities of B12 deficiency</p> <ul style="list-style-type: none">• Macrocytic anaemia and the MCV is usually >110fL• Hypersegmented neutrophils• Serum B12 is low <p>Management: Hydroxocobalamin IM</p>
7.	<p>A 60 year old man presents with a lump in the left supraclavicular region. He complains that he does not eat as much anymore because he does not have the appetite. He has also lost 10kg in the last 3 months. What is the SINGLE most probable diagnosis?</p> <p>A. Gastric cancer B. Lymphoma C. Pancoast tumor D. Thyroid cancer E. Laryngeal cancer</p> <p>The lump in the left supraclavicular region is known as a Virchow's node it is indicative of carcinoma of the stomach. The weight loss and decrease appetite supports the diagnosis of gastric cancer.</p>
8.	<p>A 50 year old man has severe pain on defecation. On examination, a tender, reddish blue swelling is seen near the anal verge. What is the SINGLE most likely diagnosis?</p> <p>A. Perianal abscess B. Perianal haematoma C. Pilonidal cyst D. Haemorrhoids E. Anal fistula</p>



	<p>Perianal haematoma</p> <p>Strictly speaking, it is actually a clotted venous sacculi. It appears as a 2-4mm 'dark blueberry' (purple colour) under the skin at the anal margin. It is seen as swollen and acutely tender perianal lumps.</p> <p>Management:</p> <p>It may be evacuated under local anaesthesia or left to resolve spontaneously.</p> <ul style="list-style-type: none">• Incision and drainage of the clot relieve pain but the thrombosis often recurs and there may be persistent bleeding.• Conservative treatment includes analgesia, ice packs and stool softeners. A topical calcium antagonist may help to relieve pain. If managed conservatively, symptoms usually settle within 10-14 days
9.	<p>A 49 year old female presents with right hypochondrial pain. An ultrasound shows a large gallstone. Her BP is 120/85 mmHg; respiratory rate 18/min; Heart rate 90 bpm; Temperature 37.6°C; WBC 15 x 10⁹/L. What is the SINGLE most appropriate management?</p> <p>A. Laparoscopic cholecystectomy</p> <p>B. Reassure</p> <p>C. Low fat diet</p> <p>D. Ursodeoxycholic acid</p> <p>E. Emergency laparotomy</p> <p>As she is symptomatic, reassurance is out of the question. The two remaining options are laparoscopic cholecystectomy or emergency laparotomy. Laparoscopic cholecystectomy is the preferred option here as there are no signs of gallbladder perforation. Laparotomy has higher risk as it is much more invasive.</p> <p>Acute cholecystitis</p> <p>Acute cholecystitis follows stone or sludge impaction in the neck of the gallbladder, which may cause continuous epigastric or RUQ pain (referred to the right shoulder), vomiting, fever, local peritonism, or a gallbladder mass.</p> <p>The main difference from biliary colic is the inflammatory component (local peritonism, fever, and elevated WCC).</p> <p>If the stone moves to the common bile duct (CBD), obstructive jaundice and cholangitis may occur</p> <p>Murphy's sign is positive when you lay 2 fingers over the RUQ and ask patient to breathe in which causes pain & arrest of inspiration as an inflamed gallbladder impinges on your fingers. It is only positive if the same test in the LUQ does not cause pain.</p> <p>Tests:</p> <p>WCC would be elevated</p>



	<p>Ultrasound shows a thick-walled, shrunken gallbladder</p> <p>Management: Nil by mouth, pain relief, IV fluids, and antibiotics.</p> <p>Once symptoms settle, do a laparoscopic cholecystectomy. Laparoscopic cholecystectomy is the treatment of choice for all patients fit for general anaesthesia. Open surgery is required if there is gall bladder perforation.</p>
10.	<p>42 year old obese woman presents to the emergency department with a 12 hour history of severe epigastric pain. The pain started suddenly and radiates to her back. It is relieved when sitting forward. She is nauseous and has vomited twice since the pains started. She drinks one and a half glasses of wine per day. She has no significant past medical history. She has a pulse rate of 110 beats/minute and is tender in the epigastric region. What is the SINGLE most appropriate investigation?</p> <p>A. Chest X-ray B. Abdominal ultrasound C. Serum lipase D. Abdominal X-ray E. Liver function test</p> <p>The likely diagnosis is acute pancreatitis. The most useful investigation is a serum lipase, looking for an elevation of more than 3 times the upper limit of normal.</p> <p>While abdominal x-rays are not useful in the diagnosis of pancreatitis, they are routinely ordered to exclude other potential causes of abdominal pain such as perforation or bowel obstruction.</p> <p>Ultrasound is useful to detect the presence of gallstones but it is not a good diagnostic test for acute pancreatitis. The pancreas is poorly visualised in 25-50% of cases.</p> <p>Urea and electrolytes and liver function test do not directly aid the diagnosis of pancreatitis however, they are helpful in assessing the severity of the disease (e.g. by showing the degree of leucocytosis or of hypovolaemia) or give clues of the aetiology of pancreatitis (e.g. gallstone pancreatitis).</p> <p>Acute pancreatitis</p> <p>Aetiology The vast majority of cases in the UK are caused by gallstones and alcohol.</p> <p><u>A popular mnemonic to remember is GET SMASHED</u></p> <ul style="list-style-type: none">• Gallstones• Ethanol• Trauma



	<ul style="list-style-type: none">• <i>Steroids</i>• <i>Mumps (other viruses include Coxsackie B)</i>• <i>Autoimmune (e.g. polyarteritis nodosa), Ascaris infection</i>• <i>Scorpion venom</i>• <i>Hypertriglyceridaemia, Hyperchylomicronaemia, Hypercalcaemia, Hypothermia</i>• <i>ERCP</i>• <i>Drugs (azathioprine, mesalazine*, didanosine, bendroflumethiazide, furosemide, pentamidine, steroids, sodium valproate)</i> <p>Clinical features</p> <ul style="list-style-type: none">• Gradual or sudden severe epigastric or central abdominal pain (radiates to back, sitting forward may relieve it)• Vomiting is prominent• Tachycardia• Fever,• Jaundice• Shock• Rigid abdomen with local or general tenderness• Periumbilical bruising (Cullen's sign) <p>Investigation</p> <ul style="list-style-type: none">• Raised serum amylase (>1000U/mL or around 3-fold upper limit of normal). However, lipase levels are more sensitive and more specific.• CT scan with contrast enhancement may be diagnostic where clinical and biochemical results are equivocal on admission
11.	<p>A 52 year old alcoholic man complains of epigastric and back pain associated with loose pale, offensive stools. He feels nauseous and has lost weight over the last couple of months. What is the SINGLE most likely diagnosis?</p> <p>A. Acute pancreatitis B. Chronic pancreatitis C. Gastro-oesophageal reflux disease D. Oesophagitis E. Carcinoma of the head of pancreas</p> <p>Chronic pancreatitis can present with abdominal pain. Classically, epigastric pain radiating into the back. Nausea and vomiting is also another clinical feature.</p> <p>Steatorrhoea occurs due to malabsorption of fats from the lack of pancreatic lipase secretion. This subsequently causes weight loss. Occasionally, the question writers may use words like "offensive stools which are difficult to flush" which in other words represent the term steatorrhoea.</p> <p>Endocrine dysfunction such as diabetes mellitus may be part of the stem as well.</p>



	<p>One might consider “Carcinoma of the head of pancreas” as the answer given the similar symptoms of weight loss, epigastric pain and history of alcohol. The reason that the answer for this question is not “Carcinoma of the head of pancreas” is because the stem would include obstructive jaundice as part of the features.</p>
12.	<p>A 41 year old man has had a liver biopsy as part of investigations for abnormal liver function test. The pathology report states: special stains demonstrate the presence of a very large amount of iron pigment within hepatocytes. What SINGLE condition is identified by the pathology report?</p> <p>A. Alpha-1-antitrypsin deficiency B. Haemangioma C. Haemochromatosis D. Haemosiderosis E. Wilson’s disease</p> <p>In haemochromatosis, characteristically, the iron is found predominantly in a periportal distribution (acinar zone 1) within the hepatic lobule, with virtually all iron deposited in parenchymal hepatocytes and none in Kupffer cells.</p> <p>By contrast iron overload in haemosiderosis causes to accumulation of iron granules predominantly in kupffer cells and more in central area rather than peripheral hepatocyte.</p> <p>Since the question gives a pathology report of large amount of iron pigment in hepatocytes rather than Kupffer cells, the diagnosis is haemochromatosis.</p> <p>Haemochromatosis</p> <p>Hereditary haemochromatosis (HHC) is an autosomal recessive genetic disease in which increased intestinal absorption of iron causes accumulation in tissues, especially the liver, which may lead to organ damage. Other organs that may be affected by iron deposits include the pancreas, joints, heart, skin and gonads.</p> <p>Presentation</p> <ul style="list-style-type: none">• Early diagnosis is difficult because HHC is often asymptomatic until the late stages of disease. Symptoms usually start between ages 40-60• Initial symptoms are usually vague and nonspecific - eg, fatigue, weakness and heart problems• HHC may be diagnosed incidentally - eg, following abnormal serum ferritin or LFTs• Symptoms of advanced disease include:<ul style="list-style-type: none">○ Diabetes○ Bronzing of the skin○ Hepatomegaly○ Cirrhosis○ Arthropathy○ Cardiac disease - arrhythmias or cardiomyopathy○ Neurological or psychiatric symptoms - impaired memory, mood swings, irritability, depression



	<i>Remember the triad of diabetes, hepatomegaly and bronze pigmentation. This is seen in 30% of patients with haemochromatosis and is a common presentation given in the questions.</i>
13.	<p>A 25 year old woman complains of diarrhoea, and abdominal cramps for the past 8 months. She says that her diarrhoea has recently become bloody. A biopsy was performed and the colonic mucosa shows crypt abscesses. What is the SINGLE most likely diagnosis?</p> <p>A. Ulcerative colitis B. Crohn's disease C. Infective diarrhoea D. Colorectal cancer E. Irritable bowel syndrome</p> <p>Crypt abscesses (Crypts of Lieberkühn) are typical of ulcerative colitis, though not diagnostic. They are mucosal crevices that are seen in the normal gastrointestinal tract. In ulcerative colitis, these get clogged up with neutrophilic exudates, forming "crypt abscesses." These are not "real" abscesses and do not require surgical drainage.</p> <p>It is important to know the differences of ulcerative colitis and crohn's disease for PLAB as it is very commonly asked.</p>
14.	<p>A 28 year old man has intermittent diarrhoea, fatigue and weight loss over the last 6 months. He has excluded gluten from his diet in the last 2 months and his symptoms have resolved. He wants to be tested to confirm the diagnosis of coeliac disease. What is the SINGLE most appropriate next step in action?</p> <p>A. Jejunal biopsy B. Reintroduce gluten prior to testing C. Sweat test D. Tissue transglutaminase antibodies E. Stool sample</p> <p>If patients are already taking a gluten-free diet they should be asked, if possible, to reintroduce gluten for at least 6 weeks prior to testing. Serology test and jejunal biopsies may come back negative if patient is currently on a gluten-free diet.</p> <p>Coeliac disease Coeliac disease is caused by sensitivity to the protein gluten. Repeated exposure leads to villous atrophy which in turn causes malabsorption.</p> <p>Signs and symptoms</p> <ul style="list-style-type: none">• Chronic or intermittent diarrhoea• Stinking stools/steatorrhoea• Persistent or unexplained gastrointestinal symptoms including bloating, nausea and vomiting• Fatigue



	<ul style="list-style-type: none">• Recurrent abdominal pain, cramping or distension• Sudden or unexpected weight loss• Unexplained iron, vitamin B12 or folate deficiency. Note that the one of the most common presentation of coeliac disease is iron deficiency anaemia. Also, folate deficiency is more common than vitamin B12 deficiency in coeliac disease <p>Complications</p> <ul style="list-style-type: none">• osteoporosis• T-cell lymphoma of small intestine (rare) <p>Investigation</p> <p>Diagnosis is made by a combination of immunology and jejunal biopsy. Any test for coeliac disease is accurate only if a gluten-containing diet is eaten during the diagnostic process. The person should not start a gluten-free diet until diagnosis is confirmed.</p> <p>NICE issued guidelines on the investigation of coeliac disease in 2009. If patients are already taking a gluten-free diet they should be asked, if possible, to reintroduce gluten for at least 6 weeks prior to testing.</p> <p><u>Specific auto-antibodies</u></p> <ul style="list-style-type: none">• Tissue transglutaminase (TTG) antibodies (IgA) are first-choice according to NICE• Endomysial antibody (IgA) <p><u>Jejunal biopsy</u></p> <p>A biopsy is still needed to diagnose coeliac disease even if antibody test confirm the diagnosis of coeliac disease.</p> <ul style="list-style-type: none">• Villous atrophy• Crypt hyperplasia• Increase in intraepithelial lymphocytes <p>Management</p> <ul style="list-style-type: none">• Gluten-free diet
15.	<p>A 45 year old man had his head of pancreas removed due to malignancy. He now has a rigid abdomen which is tender, a temperature of 37.5°C, a blood pressure of 90/55 mmHg and pulse rate of 125 bpm. His past medical history includes peptic ulcer disease. What is the SINGLE most appropriate next action?</p> <p>A. CT abdomen B. X-ray abdomen C. MRI abdomen D. US abdomen E. Endoscopy</p> <p>This is a case of perforated peptic ulcer with the features of shock, abdominal rigidity and raised temperature. Perforation of a peptic ulcer causes an acute abdomen with epigastric pain that may progress to generalised rigidity.</p>



	<p>The stress an operation may cause the body to produce higher amounts of acid, which can irritate preexisting ulcers leading to easy perforation. A diagnosis is made by taking an erect abdominal/chest X-ray (seeking air under the diaphragm).</p>
16.	<p>A 56 year old woman has had severe abdominal pain for 24 hours radiating to her back and is accompanied by nausea and vomiting. She denies any diarrhoea or fever. She appears to be tachycardic and in shock. She has a history of gallstones. What is the SINGLE most likely investigations to confirm the diagnosis?</p> <p>A. Ultrasound abdomen B. Abdominal X-ray C. Serum lipase D. Urea and electrolytes E. Liver function test</p> <p>The likely diagnosis is acute pancreatitis. The most useful investigation is a serum lipase, looking for an elevation of more than 3 times the upper limit of normal.</p> <p>While abdominal x-rays are not useful in the diagnosis of pancreatitis, they are routinely ordered to exclude other potential causes of abdominal pain such as perforation or bowel obstruction.</p> <p>Ultrasound is useful to detect the presence of gallstones but it is not a good diagnostic test for acute pancreatitis. The pancreas is poorly visualised in 25-50% of cases.</p> <p>Urea and electrolytes and liver function test do not directly aid the diagnosis of pancreatitis however, they are helpful in assessing the severity of the disease (e.g. by showing the degree of leucocytosis or of hypovolaemia) or give clues of the aetiology of pancreatitis (e.g. gallstone pancreatitis).</p> <p>Acute pancreatitis</p> <p>Aetiology The vast majority of cases in the UK are caused by gallstones and alcohol.</p> <p><u>A popular mnemonic to remember is GET SMASHED</u></p> <ul style="list-style-type: none">• Gallstones• Ethanol• Trauma• Steroids• Mumps (other viruses include Coxsackie B)• Autoimmune (e.g. polyarteritis nodosa), Ascaris infection• Scorpion venom• Hypertriglyceridaemia, Hyperchylomicronaemia, Hypercalcaemia, Hypothermia• ERCP• Drugs (azathioprine, mesalazine*, didanosine, bendroflumethiazide, furosemide, pentamidine, steroids, sodium valproate)



	<p>Clinical features</p> <ul style="list-style-type: none">• Gradual or sudden severe epigastric or central abdominal pain (radiates to back, sitting forward may relieve it)• Vomiting is prominent• Tachycardia• Fever,• Jaundice• Shock• Rigid abdomen with local or general tenderness• Periumbilical bruising (Cullen's sign) <p>Investigation</p> <ul style="list-style-type: none">• Raised serum amylase (>1000U/mL or around 3-fold upper limit of normal). However, lipase levels are more sensitive and more specific.• CT scan with contrast enhancement may be diagnostic where clinical and biochemical results are equivocal on admission
17.	<p>A 54 year old man presents with a worsening history of intermittent dysphagia over a period of 3 months. He has not experienced any weight loss and complains of sometimes regurgitating food, after which he says he experiences a feeling of great relief. What is the SINGLE most likely diagnosis?</p> <p>A. Achalasia B. Oesophageal carcinoma C. Scleroderma D. Plummer-Vinson syndrome E. Barrett's Oesophagus</p> <p>Achalasia</p> <ul style="list-style-type: none">• Achalasia is the idiopathic loss of the normal neural structure of the lower oesophageal sphincter. The lower oesophageal sphincter is usually contracted to prevent the acidic gastric contents from refluxing backward into the oesophagus. For swallowing to occur, there is normally a relaxation process of the lower oesophageal sphincter in order to allow food to pass into the stomach. Inhibitory neurons are stimulated, blocking the impulses that cause constriction. In achalasia, these inhibitory neurons have been lost, as well as the ability to relax the lower oesophageal sphincter. <p>Presentation:</p> <ul style="list-style-type: none">• Progressive dysphagia to both solids and liquids simultaneously and can have regurgitation several hours after eating• There can also be weight loss• Achalasia has no relationship with alcohol or tobacco use• Note: This is different from oesophageal cancer, which not only usually presents with dysphagia to solid foods that progresses to difficulty swallowing liquids, but also is more common in older patients with a long history of alcohol and tobacco use.



	<p>Investigations:</p> <ul style="list-style-type: none">• Barium swallow shows dilation of the esophagus, which narrows into a "bird's beak" at the distal end• The most accurate test overall is esophageal manometry. Manometry shows increased lower oesophageal resting pressure <p>Management:</p> <ul style="list-style-type: none">• Dilatation of the lower oesophageal sphincter
18.	<p>A 26 year old young man presents with history of passing loose stools for the past 2 months. He says his stools contain blood and mucous and are associated with abdominal pain. He had a colonoscopy after which he was started on treatment. What is the SINGLE most appropriate treatment for his condition?</p> <p>A. Mesalazine B. Corticosteroids C. Mebeverine D. Cyclosporine E. Peppermint oil</p> <p>The clinical features and treatment after colonoscopy suggests diagnosis of ulcerative colitis for which initial treatment option is mesalazine.</p> <p>Ulcerative Colitis Management <u>Inducing remission</u> Topical → Rectal Mesalazine better than rectal steroids 1st line → 5-ASA (e.g. oral mesalazine) 2nd line → Oral Prednisolone</p> <p>If severe colitis, treat in hospital with IV steroids as first line.</p> <p><u>Maintaining remission</u> oral aminosalicylates e.g. mesalazine</p>
19.	<p>A 58 year old man has been having frequent episodes of secretory diarrhea for the past 2 weeks. His diarrhoea is extremely watery with large amounts of mucus. A diagnosis of villous adenoma was made after performing an endoscopy. What is the SINGLE most likely electrolyte abnormality?</p> <p>A. Hyperkalemia B. Hypernatremia C. Hyponatremia D. Hypokalemia E. Hypercalcemia</p> <p>This is a very high yield question and you need to remember that villous adenoma is one of the causes of hypokalaemia.</p>



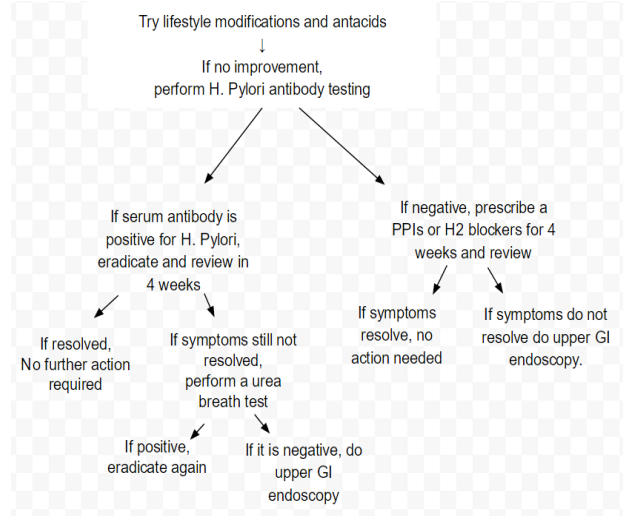
20.	<p>A 55 year old man develops fatigue and palpitations. He had a gastrectomy a years ago. Recent blood test were ordered which shows:</p> <p>Haemoglobin 98 g/L Mean cell volume (MCV) 110 fL</p> <p>On neurological examination, loss of proprioception and vibration sense were noted. What is the SINGLE most likely diagnosis?</p> <p>A. Iron deficiency B. Folate deficiency C. Vitamin B12 deficiency D. Haemolytic anemia E. Sickle cell disease</p> <p>High MCV and low Hb → Macrocytic anaemia</p> <p>These findings together with a history of a gastric resection whereby malabsorption of B12 could occur, points towards the diagnosis of B12 deficiency.</p> <p>B12 deficiency</p> <p>Vitamin B12 is found in meat, fish, and dairy products, but not in plants. Body stores are sufficient for 4 years.</p> <p>B12 then binds to intrinsic factor in the stomach, and this complex is absorbed in the terminal ileum.</p> <p>Clinical presentation</p> <ul style="list-style-type: none">• Symptoms are those of chronic anaemia, i.e. fatigue, dyspnoea on effort• Neurological symptoms may also be present → classically peripheral paresthesia and disturbances of position and vibration sense• If uncorrected, the patient may develop subacute combined degeneration of the spinal cord leading to permanently ataxia <p>Causes of B12 deficiency:</p> <ul style="list-style-type: none">• Pernicious anaemia → Commonest cause. It is due to autoimmune gastric atrophy resulting in loss of intrinsic factor production required for absorption of B12. It is usually associated with other autoimmune problems e.g. hypothyroidism• Dietary (e.g. vegans)• Following total gastrectomy• Ileal disease → Resection of ileum, Crohn's disease• Malabsorption disorders → Coeliac disease, tropical sprue <p><i>In PLAB, one distinction that may help you choose between B12 and folate deficiency is the diet. Good food sources of folate include broccoli, brussels sprouts, asparagus, peas (basically</i></p>
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	<p>vegetables). Thus if the given scenario is a vegetarian, it is unlikely that he is suffering from folate deficiency. In that case, pick B12 deficiency.</p> <p>Haematological abnormalities of B12 deficiency</p> <ul style="list-style-type: none">• Macrocytic anaemia and the MCV is usually >110fL• Hypersegmented neutrophils• Serum B12 is low <p>Management: Hydroxocobalamin IM</p>
21.	<p>A 36 year old lady has diarrhoea for the last 2 months. She has lost 8 kg in that time period. A colonoscopy was performed which showed fistulas. Perianal fistulas are also noticed. What is the SINGLE most likely diagnosis?</p> <p>A. Crohn's disease B. Irritable bowel syndrome C. Coeliac disease D. Diverticulitis E. Ulcerative colitis</p> <p>The diagnosis of Crohn's disease is quite clear here. Fistulas help differentiate between ulcerative colitis and crohn's. Since fistulas are present, it can only be crohn's disease.</p> <p>It is important to know the differences of ulcerative colitis and crohn's disease for PLAB as it is very commonly asked.</p>
22.	<p>A 35 year old man presents with history of dyspepsia. Serum antibodies for H.Pylori are negative. No improvement is seen after 1 month of treatment. What is the SINGLE most appropriate next step?</p> <p>A. Urea breath test B. Repeat serum antibodies C. CT D. MRI E. Endoscopy</p> <p>This patient is less than 55 years old and does not have any red flags.</p>



This is the general management for dyspepsia for patients less than 55 with no red flags:



23. A 38 year old man has just returned from Kenya a few days ago. Since his return, he has developed watery diarrhoea with crampy abdominal pain. What is the SINGLE most likely causative organism?

- A. Giardia
- B. Entamoeba
- C. Shigella
- D. Salmonella
- E. Escherichia coli**

SAMPLE

The most common organism that causes traveller's diarrhoea is E. coli. It will usually cause a mild self-limiting diarrhoea for less than 72 hours.

24. A 25 year old woman with longstanding constipation has severe anorectal pain on defecation. She notices streaks of blood that covers her stool. Rectal examination is impossible to perform as she is in such great pain. What is the SINGLE most likely diagnosis?

- A. Anal haematoma
- B. Anal fissure**
- C. Anal abscess
- D. Proctalgia fugax
- E. Haemorrhoids

Anal fissure

- exquisite pain with defecation and blood streaks covering the stools
- The fear of pain is so intense that they avoid bowel movements (and get constipated)
- refuse proper examination of area → thus exam needs to be done under anaesthesia

Anal fissures are longitudinal or elliptical tears of the squamous lining of the distal anal canal.



	<p>If present for less than 6 weeks → defined as acute If present for more than 6 weeks → defined as chronic</p>
25.	<p>A 28 year type 1 diabetic has intermittent diarrhoea and abdominal bloating over the last 6 months. He also complains of feeling tired all the time. Tissue transglutaminase antibodies was found to be positive. What is the SINGLE most appropriate next step in action?</p> <p>A. Jejunal biopsy B. Upper gastrointestinal endoscopy C. Sweat test D. Thyroid function test E. Stool culture</p> <p>There is an association between type 1 diabetes and coeliac disease. The gold standard to diagnose coeliac is a jejunal biopsy.</p> <p>Coeliac disease Coeliac disease is caused by sensitivity to the protein gluten. Repeated exposure leads to villous atrophy which in turn causes malabsorption.</p> <p>Signs and symptoms</p> <ul style="list-style-type: none">• Chronic or intermittent diarrhoea• Stinking stools/steatorrhoea• Persistent or unexplained gastrointestinal symptoms including bloating, nausea and vomiting• Fatigue• Recurrent abdominal pain, cramping or distension• Sudden or unexpected weight loss• Unexplained iron, vitamin B12 or folate deficiency. Note that the one of the most common presentation of coeliac disease is iron deficiency anaemia. Also, folate deficiency is more common than vitamin B12 deficiency in coeliac disease <p>Complications</p> <ul style="list-style-type: none">• osteoporosis• T-cell lymphoma of small intestine (rare) <p>Investigation Diagnosis is made by a combination of immunology and jejunal biopsy. Any test for coeliac disease is accurate only if a gluten-containing diet is eaten during the diagnostic process. The person should not start a gluten-free diet until diagnosis is confirmed.</p> <p>NICE issued guidelines on the investigation of coeliac disease in 2009. If patients are already taking a gluten-free diet they should be asked, if possible, to reintroduce gluten for at least 6 weeks prior to testing.</p>



	<p><u>Specific auto-antibodies</u></p> <ul style="list-style-type: none">• Tissue transglutaminase (TTG) antibodies (IgA) are first-choice according to NICE• Endomysial antibody (IgA) <p><u>Jejunal biopsy</u></p> <p>A biopsy is still needed to diagnose coeliac disease even if antibody test confirm the diagnosis of coeliac disease.</p> <ul style="list-style-type: none">• Villous atrophy• Crypt hyperplasia• Increase in intraepithelial lymphocytes <p>Management</p> <ul style="list-style-type: none">• Gluten-free diet
26.	<p>A 48 year old female presents with tiredness and painless dysphagia. She complains of a feeling of something stuck in her throat. A full blood count shows microcytic, hypochromic anaemia. On examination, glossitis is noted. An oesophageal web is found at the post cricoid region. What is the SINGLE most likely diagnosis?</p> <p>A. Coeliac disease B. Plummer vinson syndrome C. Pharyngeal carcinoma D. Barrett's oesophagus E. Oesophageal carcinoma</p> <p>When someone presents with dysphagia, glossitis and iron deficiency anaemia, Plummer vinson syndrome is your answer.</p> <p>Plummer Vinson syndrome</p> <ul style="list-style-type: none">• A condition where iron deficiency is associated with a postcricoid oesophageal web <p>The syndrome most often affects middle-aged women.</p> <p>Presentation:</p> <ul style="list-style-type: none">• Painless, intermittent dysphagia → due to oesophageal webs• Symptoms of iron-deficiency anaemia <p>Management:</p> <ul style="list-style-type: none">• Iron supplements• Dilation of the webs



27.	<p>A 69 year old smoker has had increasing dysphagia when eating solid food which has been on going for the past 3 months. He has notice a drop of 8 kg in weight in the past few months. What SINGLE investigations is most likely to lead to a diagnosis?</p> <p>A. Barium swallow B. Chest X-ray C. Computed tomography chest D. Endoscopy and biopsy E. Videofluoroscopy</p> <p>The likely cause is oesophageal cancer where a malignant stricture or mass has resulted in difficulty in swallowing. An endoscopic biopsy is the definitive investigation.</p> <p>Oesophageal cancer Adenocarcinoma has now overtaken squamous cell carcinoma as the most common type of oesophageal cancer</p> <p>Risk factors</p> <ul style="list-style-type: none">• Smoking → <i>risk factor for both adenocarcinoma and squamous cell carcinoma, but associated with a much higher risk for squamous cell carcinoma than adenocarcinoma.</i>• Alcohol• GORD• Barrett's oesophagus → <i>which is a precursor of adenocarcinoma</i>• Achalasia → <i>Chronic inflammation and stasis from any cause increase the risk of oesophageal squamous cell carcinoma</i> <p><i>Very often in the stem, there would be a patient with a history of gastro-oesophageal reflux disease (GORD) or Barrett's oesophagus. Sometimes, they would give a history of increasing dysphagia and weight loss.</i></p> <p>Diagnosis</p> <ul style="list-style-type: none">• Upper GI endoscopy with brushings and biopsy of any lesion seen is the first line test• CT or MRI scan of the chest and upper abdomen is performed for staging purposes
28.	<p>While performing an appendectomy, a surgeon found a mass in the caecum of a patient. The mass was removed and sent for analysis. Analysis revealed a transmural infiltration with lymphocytes and granulomas without necrosis. What is the SINGLE most probable diagnosis?</p> <p>A. Caecal Cancer B. Lymphoma C. Tuberculosis D. Crohn's Disease E. Ulcerative Colitis</p> <p>This is a difficult question to answer as there is not much background information in terms of patient history or signs and symptoms in terms of patient presentation. Based on the histology,</p>



we would be tempted to choose Crohn's disease as a diagnosis as Crohn's disease is known to have histopathology of:

- Abdominal mass palpable in right iliac fossa
- Increased goblet cells on histology
- Granulomas seen on histology
- Transmural, skip lesions, cobble stone appearance on endoscopy
- Kantor's string sign, rose thorn ulcers and fistulae are seen on a small bowel enema

Based on the histopathology ALONE the correct answer is D. In reality, the patient would present with the classical signs and symptoms of Crohn's disease i.e:

- diarrhoea (which may be bloody and become chronic - ie present for more than six weeks)
- abdominal pain and/or weight loss
- periods of acute exacerbation, interspersed with remissions or less active disease.
- Systemic symptoms of malaise, anorexia, or fever
- Abdominal tenderness or distension, palpable masses.
- Anal and perianal lesions (pendulous skin tags, abscesses, fistulae) are characteristic.
- Mouth ulcers.

Some additional points to remember

To diagnose UC or CD:

1. Fecal calprotectin
2. AXR - to exclude colonic dilatation
3. Stool exam
4. Barium fluoroscopy
5. Sigmoidoscopy/colonoscopy + biopsy

Ulcerative Colitis Management

Inducing remission

Topical → Rectal Mesalazine better than rectal steroids

1st line → 5-ASA (e.g. oral mesalazine)

2nd line → Oral Prednisolone

If severe colitis, treat in hospital with IV steroids as first line.

Maintaining remission

oral aminosalicylates e.g. mesalazine

Management of Crohn's disease

Inducing remission

1st line → Oral Prednisolone

2nd line → 5-ASA drugs (e.g. mesalazine)

azathioprine or mercaptopurine may be used as an add-on medication to induce remission but is not used as monotherapy

metronidazole is often used for isolated perianal disease

Maintaining remission

1st line → azathioprine or mercaptopurine



29.	<p>A 44 year old woman had a total abdominal hysterectomy and bilateral salpingo-oophorectomy 5 days ago. She now has increasing abdominal discomfort and is now bloating. She was encourage to stay well hydrated but she is still unable to pass gas. No bowel sounds are heard. What is the SINGLE most appropriate next step?</p> <p>A. X-Ray abdomen B. Exploratory laparoscopy C. CT abdomen D. Ultrasound abdomen E. Barium enema</p> <p>The likely diagnosis here is paralytic ileus and an X-ray can help with the diagnosis</p> <p>Prolonged surgery is one of the major causes of paralytic ileus and it occurs due to over handling of the bowel.</p> <p>Paralytic ileus is to be expected in the first few days after abdominal surgery. Bowel sounds are absent and there is no passage of gas. There may be mild distension, but there is no pain.</p> <p>Clinical features</p> <ul style="list-style-type: none">• Abdominal distension, tympanic or dull on percussion.• Abdominal X-ray → Shows air/fluid-filled loops of small and/or large bowel• Intestinal ileus usually settles with appropriate treatment. <p>Treatment</p> <ul style="list-style-type: none">• Pass an NGT to empty the stomach of fluid and gas if the patient is nauseated or vomiting. Small volumes of tolerated oral intake may help mild ileus to resolve.• Ensure adequate hydration by IV infusion ('drip and suck').• Reduce opiate analgesia and encourage the patient to mobilize.
30.	<p>A 32 year old woman complains of brief episodes of severe shooting pain in the rectum that usually occur at night. Rectal examination and flexible sigmoidoscopy detect no abnormalities. What is the SINGLE most probable diagnosis?</p> <p>A. Anal haematoma B. Anal fissure C. Rectal carcinoma D. Proctalgia fugax E. Piles</p> <p>A normal rectal examination and flexible sigmoidoscopy excludes the other options. Only proctalgia fugax is left.</p>



	<p>Proctalgia fugax Severe recurrent rectal pain in the absence of any organic disease. Attacks may occur at night, after bowel actions, or following ejaculation. Anxiety is said to be an associated feature.</p>
31.	<p>A 42 year old female presents to her GP following a staging CT for her recently diagnosed renal cell carcinoma. On the CT scan, gallstones were noticed in the gallbladder. She has no history of abdominal pain or jaundice and is otherwise well. A left sided nephrectomy for her renal cell carcinoma has been scheduled. What is the SINGLE most appropriate course of action?</p> <p>A. Ultrasound abdomen B. ERCP (Endoscopic Retrograde cholangiopancreatography) C. MRCP (Magnetic resonance cholangiopancreatography) D. Reassurance E. Laparoscopic cholecystectomy</p> <p>Reassurance is the correct option here. It is reserved for patients who are asymptomatic and have stones in their gallbladder. Stones that are found incidentally, as a result of imaging investigations unrelated to gallstone disease in patients who are asymptomatic do not require any intervention. But be aware that if the gallstones were found in the common bile duct instead of the gallbladder, then a laparoscopic cholecystectomy may be needed regardless if they are symptom free or have symptoms.</p>
32.	<p>A 60 year old man presents with weight loss and complains of mild abdominal pain, bloating and diarrhoea for the past 6 months. A recent blood test shows a haemoglobin of 7 g/dl. What is the SINGLE most appropriate investigation?</p> <p>A. Barium enema B. Colonoscopy C. Sigmoidoscopy D. Computed tomographic (CT) colonography E. Carcinoembryonic Antigen (CEA)</p> <p>Colonoscopy would be able to diagnose majority of the causes of change of bowel habit and weight loss. The likely diagnosis here is colorectal cancer although inflammatory bowel disease could also present with similar features (e.g. weight loss, abdominal pain, and anaemia). Whatever the cause, a colonoscopy and biopsy is the gold standard to give us a diagnosis.</p> <p>Colorectal carcinoma diagnosis Colonoscopy is still the preferred diagnostic investigation. Alternatives to colonoscopy include barium enema and CT colonography.</p> <p>If a patient is without major comorbidities, colonoscopy should be offered to diagnose colorectal cancer. If a lesion suspicious of cancer is detected, a biopsy sample should be sent for histology.</p>



	<p>Flexible sigmoidoscopy, then barium enema can be used as an alternative to colonoscopy for patients with major comorbidity. Barium enema may also be used if colonoscopy fails to visualise the caecum or if the patient is unable to tolerate the colonoscopy procedure.</p> <p>Computed tomographic (CT) colonography can also be used as an alternative if the local radiology service can demonstrate competency in this technique. If a lesion suspicious of cancer is detected on CT colonography, a colonoscopy with biopsy to confirm the diagnosis should be performed.</p> <p>The tumour marker Carcinoembryonic Antigen (CEA) is of no use for diagnosis or staging, but can be used to monitor disease relapse if raised at diagnosis and falls to normal after resection.</p>
33.	<p>A 38 year old man complains of "crushing" chest discomfort for 1 hour that started when he drank a cold drink. He has no significant medical history. ECG shows sinus rhythm. He is given sublingual nitroglycerin in the emergency room that improves his chest pain almost immediately. He has a pulse of 70 beats/minute, a blood pressure of 130/80 mmHg and a respiratory rate of 18 breaths/minute. Cardiac enzymes came back negative. What is the SINGLE most likely diagnosis?</p> <p>A. Myocardial Infarction B. Pericarditis C. Oesophageal spasm D. Pulmonary embolism E. Pneumothorax</p> <p>The pain started when he drank a cold drink. The most likely answer here is oesophageal spasm.</p> <p>Diffuse Esophageal Spasm (DES)</p> <p>Clinical Presentation These patients present with intermittent chest pain and dysphagia. The pain can simulate that of a myocardial infarction, but it bears no relationship with exertion. The pain can be precipitated by drinking cold liquids.</p> <p>Diagnosis Barium studies may show a "corkscrew" pattern at the time of the spasm. The most accurate test is manometric studies, which will show high-intensity, disorganized contractions</p> <p>Because the contractions are disorganized, they do not lead to the forward flow of food and peristalsis.</p> <p>Treatment Calcium-channel blockers, such as nifedipine, and nitrates.</p>



34.	<p>A 58 year old man presents with a lump in the left supraclavicular fossa. It has been present for the last 6 months. He also complains of dyspepsia and loss weight which he accounts for due to his reduced appetite. What is the SINGLE most likely term for the lump?</p> <p>A. Virchow's node B. Lymphoma C. Pancoast tumor D. Thyroglossal cyst E. Reactive lymph nodes</p> <p>The lump in the left supraclavicular region is known as a Virchow's node it is indicative of carcinoma of the stomach. The weight loss and decrease appetite supports the diagnosis of gastric cancer.</p>
35.	<p>A 12 year old child complains of right iliac fossa pain and diarrhoea. On colonoscopy, a transmural, cobblestone appearance mucosa is seen near the ileo-caecal junction. What is the SINGLE most appropriate management?</p> <p>A. Mesalazine B. Paracetamol C. Ibuprofen D. Metronidazole E. Mercaptopurine</p> <p>The diagnosis of Crohn's disease is quite clear here. A transmural, cobblestone appearance mucosa is a give away that this is Crohn's disease.</p> <p>Management of Crohn's disease</p> <p><u>Inducing remission</u> 1st line → Oral Prednisolone 2nd line → 5-ASA drugs (e.g. mesalazine)</p> <ul style="list-style-type: none">• azathioprine or mercaptopurine may be used as an add-on medication to induce remission but is not used as monotherapy• metronidazole is often used for isolated perianal disease <p><u>Maintaining remission</u> 1st line → azathioprine or mercaptopurine</p> <p>It is important to know the differences of ulcerative colitis and crohn's disease for PLAB as it is very commonly asked.</p>



36.	<p>A 40 year old woman complains of dysphagia when eating solids and drinking liquids. She sometimes suffers from severe retrosternal chest pain. Barium swallow reveals a dilated oesophagus which tapers to a fine distal end. What is the SINGLE most appropriate management?</p> <p>A. Reassurance B. Antispasmodics C. Dilatation of the lower oesophageal sphincter D. Endoscopic diverticulectomy E. Calcium channel blocker</p> <p>Achalasia</p> <ul style="list-style-type: none">Achalasia is the idiopathic loss of the normal neural structure of the lower oesophageal sphincter. The lower oesophageal sphincter is usually contracted to prevent the acidic gastric contents from refluxing backward into the oesophagus. For swallowing to occur, there is normally a relaxation process of the lower oesophageal sphincter in order to allow food to pass into the stomach. Inhibitory neurons are stimulated, blocking the impulses that cause constriction. In achalasia, these inhibitory neurons have been lost, as well as the ability to relax the lower oesophageal sphincter. <p>Management:</p> <ul style="list-style-type: none">Dilatation of the lower oesophageal sphincter
37.	<p>A 55 year old man with no past medical history comes to your office for the evaluation of "difficulty swallowing" foods. He has had this problem for almost a year, and finds it difficult for him to swallow both solids and liquids. A barium meal shows gross dilatation of the esophagus with a smooth narrowing at the lower end of the esophagus. What is the SINGLE most likely diagnosis?</p> <p>A. Achalasia B. Myasthenia gravis C. Oesophageal carcinoma D. Oesophageal web E. Systemic sclerosis</p>
38.	<p>What is the pathological change in Barrett's esophagus?</p> <p>A. Replacement of squamous epithelium to columnar epithelium B. Replacement of columnar epithelium to squamous epithelium C. Replacement of squamous epithelium to cuboidal epithelium D. Dysplasia E. Hyperplasia</p>



	<p>Barrett's oesophagus</p> <p>Barrett's oesophagus results from prolonged exposure of normal oesophageal squamous epithelium to the refluxate of GORD. This causes mucosal inflammation and erosion, leading to replacement of the mucosa with metaplastic columnar epithelium.</p> <p>The most significant associated morbidity is oesophageal adenocarcinoma.</p>
39.	<p>A 25 year old woman has diarrhoea and abdominal bloating over the last 4 months. On examination, she has blistering rash over her elbows. Her blood test show:</p> <p>Haemoglobin 105 g/L Mean cell volume (MCV) 79 fL</p> <p>On jejunal biopsy, there is shortening of the villi and lymphocytosis. What is the SINGLE most likely diagnosis?</p> <p>A. Coeliac disease B. Whipple's disease C. Crohn's disease D. Tropical sprue E. Giardiasis</p> <p>The blistering rash over her elbows is called dermatitis herpetiformis. Dermatitis herpetiformis, is a skin condition linked to coeliac disease. Typical symptoms of dermatitis herpetiformis are red, raised patches, often with blisters and severe itching.</p> <p>The low haemoglobin is another clue towards coeliac as one of the most common presentation of coeliac disease is iron deficiency anaemia. Folate and B12 deficiency can also occur.</p> <p>The shortening of villi (villous atrophy) and lymphocytosis on jejunal biopsy is provides us with the diagnosis of coeliac disease.</p> <p>One may be thinking of tropical sprue as a diagnosis as it also has villous atrophy on jejunal biopsy and has similar presentation. But tropical sprue does not present with dermatitis herpetiformis and it is also much rarer as compared to coeliac disease.</p>



40. A 28 year old female presents with a 4 month history of diarrhoea, lethargy and weight loss. She complains of abdominal discomfort and passing stools more than 6 times a day. An endoscopy was performed which shows cobblestone mucosa. What is the SINGLE most likely diagnosis?

- A. Amoeba
- B. Colon Cancer
- C. Infective diarrhoea
- D. Crohn's disease**
- E. Ulcerative colitis

The diagnosis of Crohn's disease is quite clear here. Lethargy and weight loss are non specific signs that can occur in Crohn's disease. The give away here is the cobblestone mucosa that is seen on endoscopy which is pathognomonic for Crohn's disease.

SAMPLE



41. A 33 year old woman has severe upper abdominal pain with radiation to the back within 24 hours of removing gallstones by endoscopic retrograde cholangiopancreatography (ERCP). The pain is eased when she leans forward. She reports some nausea and vomiting but denies any diarrhoea. Jaundice is noted and the epigastric region is tender on palpation. Her blood pressure is 120/80 mmHg, and temperature is 37.3°C. What is the SINGLE most likely reason for his signs and symptoms?

- A. Ascending cholangitis
B. Acute pancreatitis
C. Perforated duodenal ulcer
D. Chronic pancreatitis
E. Bleeding

The likely cause is acute pancreatitis. Pancreatitis is one of the most frequent post-ERCP complications. The incidence of this is around 20%.

Ascending cholangitis may have similar presentation but given that she is afebrile, the likely cause is acute pancreatitis. Note that even in acute pancreatitis, mild pyrexia is common.

Comparison between acute pancreatitis and acute cholangitis

Acute pancreatitis	Acute cholangitis
<p><i>Suggested by:</i></p> <ul style="list-style-type: none">• Pain radiating straight through to the back which is better on sitting up or leaning forward• General abdominal tenderness with reduced bowel sounds <p><i>Confirmed by:</i></p> <ul style="list-style-type: none">• Elevated serum lipase and amylase, CT pancreas	<p><i>Suggested by:</i></p> <ul style="list-style-type: none">• Fever, RUQ abdominal pain, and jaundice (Charcot's triad)• Hypotension• Leucocytosis <p><i>Confirmed by:</i></p> <ul style="list-style-type: none">• Ultrasound scan of gallbladder and biliary ducts, and blood cultures

Acute pancreatitis

Aetiology

The vast majority of cases in the UK are caused by gallstones and alcohol.

A popular mnemonic to remember is GET SMASHED

- Gallstones
- Ethanol
- Trauma
- Steroids
- Mumps (other viruses include Coxsackie B)
- Autoimmune (e.g. polyarteritis nodosa), Ascaris infection



	<ul style="list-style-type: none">• <i>Scorpion venom</i>• <i>Hypertriglyceridaemia, Hyperchylomicronaemia, Hypercalcaemia, Hypothermia</i>• <i>ERCP</i>• <i>Drugs (azathioprine, mesalazine*, didanosine, bendroflumethiazide, furosemide, pentamidine, steroids, sodium valproate)</i> <p>Clinical features</p> <ul style="list-style-type: none">• Gradual or sudden severe epigastric or central abdominal pain (radiates to back, sitting forward may relieve it)• Vomiting is prominent• Tachycardia• Fever,• Jaundice• Shock• Rigid abdomen with local or general tenderness• Periumbilical bruising (Cullen's sign) <p>Investigation</p> <ul style="list-style-type: none">• Raised serum amylase (>1000U/mL or around 3-fold upper limit of normal). However, lipase levels are more sensitive and more specific.• CT scan with contrast enhancement may be diagnostic where clinical and biochemical results are equivocal on admission
42.	<p>A 48 year old woman is admitted to A&E with a productive cough and a moderate fever. She complains of central chest pain and regurgitation of undigested food. She finds it difficult to swallow both food and liquids. These symptoms of swallowing have been present for the last 4 months. A chest X-rays shows megaesophagus. What is the most likely diagnosis?</p> <p>A. Pharyngeal pouch B. Hiatus hernia C. Bulbar palsy D. Achalasia E. Tuberculosis</p> <p>The diagnosis here is Achalasia. It can sometimes present as chest pain. The productive cough in this question points towards aspiration pneumonia secondary to retained food and fluid in the oesophagus. Regurgitation of undigested food, and difficulty swallowing both food and liquids are classic for achalasia. A chest X-ray would also show a large oesophagus in Achalasia.</p> <p>While some might argue that the answer here could potentially be pharyngeal pouch due to the regurgitation of undigested food and the aspiration pneumonia. The writers of the PLAB test would provide other hints if pharyngeal pouch was the answer such as halitosis which may occasionally be seen in a pharyngeal pouch. Furthermore, megaesophagus points towards achalasia as being the answer for this question.</p>



43. A 44 year old male is admitted with repeated attacks of pancreatitis. He has peripheral paresthesia and loss of proprioception in the legs. He is having memory loss and difficulties with thinking. What is the SINGLE most appropriate management?

- A. Thiamine
- B. Pyridoxine
- C. Hydroxocobalamin**
- D. Lipase
- E. Antibiotics

Inadequate vitamin B12 absorption can be due to chronic pancreatitis.

Neuropsychiatric features of B12 deficiency include dementia which is why he is having memory loss and difficulties with thinking.

Peripheral paresthesia and disturbances of position and vibration sense are classically seen in B12 deficiency.

Treat with hydroxocobalamin.

B12 deficiency

Vitamin B12 is found in meat, fish, and dairy products, but not in plants. Body stores are sufficient for 4 years.

B12 then binds to intrinsic factor in the stomach, and this complex is absorbed in the terminal ileum.

Clinical presentation

- Symptoms are those of chronic anaemia, i.e. fatigue, dyspnoea on effort
- Neurological symptoms may also be present → classically peripheral paresthesia and disturbances of position and vibration sense
- If uncorrected, the patient may develop subacute combined degeneration of the spinal cord leading to permanently ataxia

Causes of B12 deficiency:

- Pernicious anaemia → Commonest cause. It is due to autoimmune gastric atrophy resulting in loss of intrinsic factor production required for absorption of B12. It is usually associated with other autoimmune problems e.g. hypothyroidism
- Dietary (e.g. vegans)
- Following total gastrectomy
- Ileal disease → Resection of ileum, Crohn's disease
- Malabsorption disorders → Coeliac disease, tropical sprue

In PLAB, one distinction that may help you choose between B12 and folate deficiency is the diet. Good food sources of folate include broccoli, brussels sprouts, asparagus, peas (basically



	<p>vegetables). Thus if the given scenario is a vegetarian, it is unlikely that he is suffering from folate deficiency. In that case, pick B12 deficiency.</p> <p>Haematological abnormalities of B12 deficiency</p> <ul style="list-style-type: none">• Macrocytic anaemia and the MCV is usually >110fL• Hypersegmented neutrophils• Serum B12 is low <p>Management: Hydroxocobalamin IM</p>
44.	<p>A 36 year old bodybuilder presents with sudden onset of severe abdominal pain. He was previously fit and well and only suffers from indigestion occasionally. He has been taking ibuprofen for a long term knee injury. On examination, he has a rigid abdomen, lies motionless on the bed and has no bowel sounds. His pulse rate is 115 bpm and blood pressure is 100/60 mmHg. What is the SINGLE most likely diagnosis?</p> <p>A. Biliary peritonitis B. Ischemic colon C. Pancreatic necrosis D. Perforated diverticulum E. Perforated peptic ulcer</p> <p>The diagnosis here is perforated peptic ulcer induced by NSAIDs. The sudden onset, rigid abdomen, lying motionless and no bowel sounds are all hints that point towards perforated peptic ulcer.</p> <p>Perforated peptic ulcer</p> <p>Perforation of a gastric or duodenal ulcer is usually a severely painful sudden event. It may occur in those without known peptic ulcer disease, as well as those with previously diagnosed problems. However, close questioning may reveal recent symptoms attributed to 'indigestion'. Sudden localized epigastric pain spreads to the remainder of the abdomen the pain is worse on coughing or moving and may radiate to the shoulder tip</p> <p>Examination Although distressed, the patient often prefers to lie still, rather than roll about. Absent bowel sounds, shock, generalized peritonitis and fever develop as time passes.</p> <p>Investigations An erect chest X-ray will demonstrate free gas under the diaphragm</p> <p>In those cases where the diagnosis is suspected, but not proven by X-ray, a contrast CT scan may help.</p>



	Treatment <ul style="list-style-type: none">• Provide IV analgesia• Give an antiemetic (eg IV metoclopramide 10mg).• Resuscitate with IV 0.9 % saline.• Refer to the surgeon and give IV antibiotics
45.	<p>A 43 year old male alcoholic presents after a large haematemesis. He has some spider naevi on his chest. His blood pressure is 100/76 mmHg and pulse rate is 110 beats/minute. On examination, a swollen abdomen with shifting dullness is seen. What is the SINGLE most likely diagnosis?</p> <p>A. Peptic ulcer B. Mallory-weiss tear C. Oesophageal cancer D. Oesophageal varices E. Oesophagitis</p> <p>Spider naevi and ascites are suggestive of liver disease. It is likely that with the history of alcohol, and his signs and symptoms, he has a diagnosis of chronic liver disease which has resulted in portal hypertension and bleeding from oesophageal varices.</p> <p>Oesophageal varices</p> <ul style="list-style-type: none">• Dilated sub-mucosal veins in the lower third of the oesophagus <p>This can lead to variceal haemorrhage which occurs from the dilated veins (varices) at the junction between the portal and systemic venous systems. The bleeding is often severe and life-threatening. Majority of the patients would have a history of chronic liver disease.</p> <p>Presentation:</p> <ul style="list-style-type: none">• Haematemesis (most commonly), melaena• Signs of chronic liver disease <p>Investigation:</p> <ul style="list-style-type: none">• Endoscopy at early stage <p>Acute management of variceal bleeding</p> <ul style="list-style-type: none">• Always start with ABC• Correct clotting: FFP, vitamin K• Vasoactive agents like terlipressin → Terlipressin should be offered to patients with suspected variceal bleeding at presentation• Antibiotic prophylaxis → reduces mortality in patients with acute upper GI bleeding in association with chronic liver disease• Endoscopic variceal band ligation → If band ligation not available, use emergency sclerotherapy as first line• Sengstaken-Blakemore tube if uncontrolled haemorrhage• Transjugular Intrahepatic Portosystemic Shunt (TIPSS) if still unable to control bleeding



	<p>Prophylaxis of variceal haemorrhage</p> <ul style="list-style-type: none">• Propranolol often given at discharge to reduce portal pressure in order to decrease the risk of repeat bleeding
46.	<p>A 70 year old man had a right hemicolectomy for caecal carcinoma 4 days ago. He now has abdominal distension and recurrent vomiting. He has not opened his bowels since the surgery. On auscultation, no bowel sounds were heard. He has a temperature of 37.3°C. FBC was done. Results show: WBC - $9 \times 10^9/L$ Hb - 12g/dl</p> <p>What is the SINGLE most appropriate next management?</p> <p>A. IV Antibiotics B. Glycerine suppository C. Laparotomy D. NG tube suction and IV fluids E. Total parenteral nutrition</p> <p>The diagnosis here is paralytic ileus which is seen commonly after a prolonged surgery. It should be treated conservatively. 'Drip and suck' method would be the best option here. "Drip" meaning IV fluids. "Suck" meaning pass an NGT to empty the stomach of fluid and gas. Intestinal ileus usually settles with appropriate treatment.</p> <p>Paralytic ileus is the cessation of GI tract motility.</p> <p>Causes</p> <ul style="list-style-type: none">• Prolonged surgery, exposure and handling of the bowel• Peritonitis and abdominal trauma• Electrolyte disturbances• Anticholinergics or opiates• Immobilization <p>Clinical features</p> <ul style="list-style-type: none">• Nausea, vomiting• Abdominal distension• Air-/fluid-filled loops of small and/or large bowel on abdominal X-ray <p>Treatment</p> <ul style="list-style-type: none">• Pass an NGT to empty the stomach of fluid and gas if the patient is nauseated or vomiting. Small volumes of tolerated oral intake may help mild ileus to resolve• Ensure adequate hydration by IV infusion ('drip and suck')• Maintain the electrolyte balance



	<ul style="list-style-type: none">• Reduce opiate analgesia and encourage the patient to mobilize
47.	<p>An 65 year old lady had a urinary tract infection which was treated with broad spectrum antibiotics. A few days later she developed bloody diarrhoea and abdominal pain. She has a temperature of 38.6°C. Her blood tests show:</p> <p>Haemoglobin 119 g/L White blood cells 18 x 10⁹/L CRP 180 mg/l</p> <p>What is the SINGLE most likely management?</p> <p>A. Co-amoxiclav B. Piperacillin + tazobactam C. Ceftriaxone D. Vancomycin E. Amoxicillin</p> <p>Clostridium difficile</p> <p>Clostridium difficile is a Gram positive rod often encountered in hospital practice. It produces an exotoxin which causes intestinal damage leading to a syndrome called pseudomembranous colitis. Clostridium difficile develops when the normal gut flora are suppressed by broad-spectrum antibiotics.</p> <p>Features</p> <ul style="list-style-type: none">• diarrhoea - may be mild diarrhoea or serious bloody diarrhoea with systemic upset• abdominal pain• a raised white blood cell count is characteristic <p>Diagnosis</p> <p>Clostridium difficile toxin (CDT) detected in the stool</p> <p>Management</p> <ul style="list-style-type: none">• Stop the causative antibiotic (if possible)• first-line therapy is oral metronidazole• if severe or not responding to metronidazole then oral vancomycin may be used <p>Note: Treatment is not usually needed if patient is asymptomatic</p>



48. A 54 year old woman, known case of pernicious anaemia refuses to take hydroxocobalamin IM as she is needle shy. She is asking for oral medication. What is the SINGLE best reason that describes why oral medications will not be effective?

A. Intrinsic factor deficiency

- B. Increased gastric acidity
- C. Lack of gastric acidity
- D. Irritated gastric mucosa
- E. abundance of ileal binding sites

Pernicious anaemia is caused by an autoimmune atrophic gastritis, leading to achlorhydria and lack of gastric intrinsic factor secretion. Injections are required.

Note: if the cause of B12 deficiency is not due to pernicious anaemia (e.g. dietary), then oral B12 can be given after the initial acute course. In the UK, the usual regimen for b12 deficiency that is NOT caused by pernicious anaemia is regular (eg 3-monthly) IM hydroxocobalamin (1mg). Elsewhere, high-dose oral B12 regimen (cyanocobalamin 1 mg/day) is standard, less costly, and obviates the need for repeat visits to nurses.

B12 deficiency

Vitamin B12 is found in meat, fish, and dairy products, but not in plants. Body stores are sufficient for 4 years.

B12 then binds to intrinsic factor in the stomach, and this complex is absorbed in the terminal ileum.

Clinical presentation

- Symptoms are those of chronic anaemia, i.e. fatigue, dyspnoea on effort
- Neurological symptoms may also be present → classically peripheral paresthesia and disturbances of position and vibration sense
- If uncorrected, the patient may develop subacute combined degeneration of the spinal cord leading to permanently ataxia

Causes of B12 deficiency:

- Pernicious anaemia → Commonest cause. It is due to autoimmune gastric atrophy resulting in loss of intrinsic factor production required for absorption of B12. It is usually associated with other autoimmune problems e.g. hypothyroidism
- Dietary (e.g. vegans)
- Following total gastrectomy
- Ileal disease → Resection of ileum, Crohn's disease
- Malabsorption disorders → Coeliac disease, tropical sprue



49. A 44 year old female presents with right upper quadrant pain radiating to the right shoulder. On examination, her sclera appear yellow. Her BP is 120/85 mmHg; respiratory rate 15/min; Heart rate 85 bpm; Temperature 37.3°C; WBC 9 x 10⁹/L. She has no relevant past medical history and is not on any medications. What is the SINGLE most appropriate investigation?

A. Ultrasound abdomen

- B. Urinary bilirubin
- C. Alkaline phosphatase
- D. Serum cholesterol
- E. X-ray abdomen

Ultrasound of abdomen is the best answer, as this will most likely show the cause (i.e. gallstones present or not). The diagnosis here is likely to be biliary colic which presents in this manner. As gallstones obstruct the common bile duct, it may present with jaundice.

Urinary bilirubin will merely confirm an obstructive jaundice picture.

Alkaline phosphatase can also confirms a cholestatic picture.

Testing serum cholesterol will only show increased cholesterol levels, which is not very specific and does not address the cause

Plain Abdominal X-ray only shows around 10% of gallstones.

Biliary colic

Occurs when a stone temporarily occludes the cystic duct. There is a colicky pain in the right upper quadrant radiating to right shoulder. The episode is usually self limiting. Ultrasound establishes diagnosis of gallstones.

The main difference of biliary colic and acute cholecystitis is the inflammatory component. In acute cholecystitis there is local peritonism, fever, and elevated WCC.

Management includes:

Analgesia, rehydrate, nil by mouth.

Elective laparoscopic cholecystectomy is usually indicated



50.	<p>An 8 year old child presents with recurrent abdominal pain. He has three episodes of abdominal pain within the last 3 months and it is severe enough to affect his activity in school. The abdominal pain is intense and located periumbilically lasting for a few hours and is associated with nausea and episodic headaches. He maintains a good appetite and is an appropriate weight for his age. On examination, there were no significant findings. Full blood count, urea and electrolytes are found to be normal. What is the SINGLE most appropriate next step in management?</p> <p>A. Ultrasound abdomen B. Computed tomography abdomen C. Reassure D. Prescribe omeprazole E. Admit and administer intravenous fluids</p> <p>Recurrent abdominal pain with episodic headaches in a child with no abnormal finding on examination and investigation, points towards a diagnosis of Abdominal Migraine.</p> <p>Abdominal migraines are a type of functional pain. It is usually characterised by having:</p> <ul style="list-style-type: none">• Paroxysmal episodes of intense, acute periumbilical pain lasting for one or more hours• Pain is dull or "just sore" quality• Intervening periods of usual health, lasting weeks to months• The pain interferes with normal activities• The pain is associated with two or more of the following: anorexia, nausea, vomiting• Not attributed to another disorder <p>Reassurance is all that is needed.</p>
51.	<p>A 44 year old male was admitted to the medical ward with complaint of diarrhoea, abdominal pain and weight loss for the last few months. The examination notes finger clubbing, perianal skin tags and abdominal tenderness. A colonoscopy reveals transmural granulomatous inflammation involving the ileocaecal junction. What is the SINGLE most likely diagnosis?</p> <p>A. Crohn's disease B. Irritable bowel syndrome C. Bowel cancer D. Diverticulitis E. Ulcerative colitis</p>



52.	<p>A 55 year old woman complains of retrosternal chest pain and difficulty swallowing which is intermittent and unpredictable. She says that food gets stuck in the middle of the chest and she has to clear it with a drink of water. She is then able to finish the meal without any further problem. A barium meal shows a 'corkscrew patterned oesophagus'. What is the SINGLE most likely cause of the dysphagia?</p> <p>A. Oesophageal candidiasis B. Oesophageal carcinoma C. Oesophageal spasm D. Pharyngeal pouch E. Plummer-vinson syndrome</p> <p>The corkscrew pattern gives it away. This can only be oesophageal spasm.</p> <p>Diffuse Esophageal Spasm (DES)</p> <p>Clinical Presentation These patients present with intermittent chest pain and dysphagia. The pain can simulate that of a myocardial infarction, but it bears no relationship with exertion. The pain can be precipitated by drinking cold liquids.</p> <p>Diagnosis Barium studies may show a "corkscrew" pattern at the time of the spasm. The most accurate test is manometric studies, which will show high-intensity, disorganized contractions</p> <p>Because the contractions are disorganized, they do not lead to the forward flow of food and peristalsis.</p> <p>Treatment Calcium-channel blockers, such as nifedipine, and nitrates.</p>
53.	<p>A 51 year old man has become increasingly fatigued over the past 10 months. His medical history includes having a gastrectomy a year ago. His physical examination is unremarkable. His blood tests show:</p> <p>Haemoglobin 85 g/L White cell count $7 \times 10^9/L$ Platelets $240 \times 10^9/L$ Mean cell volume 129 fL What is the SINGLE most likely finding on a blood smear?</p> <p>A. Hypersegmented neutrophils B. Nucleated RBC C. Blasts D. Hypochromic, microcytic RBC E. Schistocytes</p>



	<p>These findings together with a history of a gastric resection whereby malabsorption of B12 could occur, points towards the diagnosis of B12 deficiency. Mean cell volume is also increased which supports that diagnosis. Hypersegmented neutrophils are seen on blood smear in megaloblastic anaemias.</p>
54.	<p>A 41 year old lady attends the clinic complaining of a long history of mild pruritus and fatigue. She looks jaundiced. Alkaline phosphatase was raised on routine liver function test. She was diagnosed with Sjögren syndrome a few years back. What is the SINGLE most appropriate test to perform to help make a diagnosis?</p> <p>A. Rheumatoid factor B. Anti-nuclear antibodies C. Anti Smooth Antibodies D. Antimitochondrial antibodies E. Antineutrophil cytoplasmic antibodies</p> <p>The diagnosis here is primary biliary cirrhosis</p> <p>The classic presentation is itching in a middle-aged woman as we see here.</p> <p>Often asymptomatic and diagnosed after finding alkaline phosphatase on routine LFT. Lethargy, sleepiness, and pruritus may precede jaundice.</p> <p>There is an association with Sjögren syndrome.</p> <p>Antimitochondrial antibodies (AMA) are the hallmark for this disease</p> <p>To help remember: Think of the M rule for Primary biliary cirrhosis</p> <ul style="list-style-type: none">• Ig<u>M</u>• anti-<u>M</u>itochondrial antibodies• <u>M</u>iddle aged females
55.	<p>A 39 year old patient was recently diagnosed with coeliac disease and has been treated with a gluten free diet for 2 years. He now has an exacerbation of the classic symptoms of coeliac disease such as abdominal pain, diarrhoea, and has lost significant weight. The biopsy of the small intestine shows lymphomatous infiltrates. What is the SINGLE most likely diagnosis?</p> <p>A. Lymphoma B. Diverticular disease C. Lynch syndrome D. Gastric tuberculosis E. Peritoneal tumor</p>



	<p>Enteropathy-associated T-cell lymphoma (EATL) is a complication of celiac disease (CD). This tumor derives from the neoplastic transformation of aberrant intraepithelial T lymphocytes emerging in coeliac patients unresponsive to a gluten-free diet.</p> <p>Biopsy may show lymphomatous infiltrates accompanied by a prominent mixed inflammatory infiltrate composed of histiocytes, small lymphocytes, plasma cells, and eosinophils, which may obscure the neoplastic cells.</p> <p><i>Just keep in mind that lymphoma should be at the top of the list of answers when you see a patient with coeliac disease in the PLAB exam.</i></p>
56.	<p>A 39 year old woman is admitted with central abdominal pain radiating through to the back. She has vomited several times in the last 24 hours. She denies any diarrhoea or fever. Bending forward helps alleviate the pain. Her blood test show:</p> <p>Amylase 1335 U/mL (Elevated)</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Cirrhosis B. Acute pancreatitis C. Perforated duodenal ulcer D. Dissecting aortic aneurysm E. Mesenteric ischaemia</p> <p>The likely diagnosis is acute pancreatitis given the elevated amylase.</p>
57.	<p>A 49 year old female presents with right upper quadrant pain radiating to the right shoulder. An ultrasound establishes the diagnosis of gallstones. Her BP is 120/85 mmHg; respiratory rate 15/min; Heart rate 85 bpm; Temperature 37.3°C; WBC 9 x 10⁹/L. What is the SINGLE most appropriate management?</p> <p>A. Elective laparoscopic cholecystectomy B. Reassure C. Low fat diet D. Ursodeoxycholic acid E. Emergency laparotomy</p> <p>As she is symptomatic, reassurance is out of the question. The two remaining options are elective laparoscopic cholecystectomy or emergency laparotomy. Laparoscopic cholecystectomy is the preferred option here as there are no signs of gallbladder perforation. Laparotomy has higher risk as it is much more invasive.</p>



	<p>Biliary colic</p> <p>Occurs when a stone temporarily occludes the cystic duct. There is a colicky pain in the right upper quadrant radiating to right shoulder. The episode is usually self limiting. Ultrasound establishes diagnosis of gallstones.</p> <p>The main difference of biliary colic and acute cholecystitis is the inflammatory component. In acute cholecystitis there is local peritonism, fever, and elevated WCC.</p> <p>Management includes: Analgesia, rehydrate, nil by mouth.</p> <p>Elective laparoscopic cholecystectomy is usually indicated</p>
58.	<p>A 50 year old man comes to A&E with abdominal pain that began suddenly about 1 hour ago. The pain is now generalized, constant, and extremely severe. He lies motionless on the stretcher, is diaphoretic, and has shallow, rapid breathing. His abdomen is rigid, very tender to deep palpation, and has guarding. X-ray shows free air under the diaphragm. What is the SINGLE most likely diagnosis?</p> <p>A. Biliary peritonitis B. Ischemic colon C. Pancreatic necrosis D. Pulmonary embolism E. Perforated peptic ulcer</p> <p>Definitely an acute abdomen. The X-ray which shows free air under the diaphragm is classical for a perforation. Lying motionless and having a rigid, tender abdomen with signs of guarding is typical for a perforated peptic ulcer.</p> <p>Perforated peptic ulcer</p> <p>Perforation of a gastric or duodenal ulcer is usually a severely painful sudden event. It may occur in those without known peptic ulcer disease, as well as those with previously diagnosed problems. However, close questioning may reveal recent symptoms attributed to 'indigestion'. Sudden localized epigastric pain spreads to the remainder of the abdomen the pain is worse on coughing or moving and may radiate to the shoulder tip</p> <p>Examination Although distressed, the patient often prefers to lie still, rather than roll about. Absent bowel sounds, shock, generalized peritonitis and fever develop as time passes.</p> <p>Investigations An erect chest X-ray will demonstrate free gas under the diaphragm</p> <p>In those cases where the diagnosis is suspected, but not proven by X-ray, a contrast CT scan may help.</p>



	<p>.</p> <p>Treatment</p> <ul style="list-style-type: none">• Provide IV analgesia• Give an antiemetic (eg IV metoclopramide 10mg).• Resuscitate with IV 0.9 % saline.• Refer to the surgeon and give IV antibiotics
59.	<p>A 52 year old man who underwent a partial gastrectomy 10 months ago presents with increasing fatigue. A yellow tinge is noted on his skin and he has a red sore tongue. What is the SINGLE most likely diagnosis?</p> <p>A. B12 deficiency</p> <p>B. Cancer of the colon</p> <p>C. Alcoholism</p> <p>D. Coeliac disease</p> <p>E. Crohn's disease</p> <p>Findings on examination for B12 deficiency may include lemon tinge to the skin and glossitis. These findings together with a history of a gastric resection whereby malabsorption of B12 could occur, points towards the diagnosis of B12 deficiency.</p>
60.	<p>An 83 year old woman who is a resident in a nursing home is admitted to a hospital with a 4 day history of chronic constipation. She has had no weight loss or change in appetite. She has been on analgesics for 3 weeks for her back pain. She is in obvious discomfort. Rectal examination reveals faecal impaction with hard stools. What is the SINGLE most appropriate immediate management?</p> <p>A. Codeine phosphate for pain relief</p> <p>B. High fiber diet</p> <p>C. IV fluids</p> <p>D. Phosphate enemas</p> <p>E. Urinary catheterisation</p> <p>Medications such as opioid pain relievers reduce intestinal movement and may cause faecal matter to become too large, hard and dry making it difficult to expel.</p> <p>Codeine can reduce motility of the colon, increasing the likelihood of faecal impactions. Thus, it is not the right answer here.</p> <p>Enemas can be used to soften the stool by increasing the water content until it is soft enough to be expelled. Phosphate enema is the clear answer here as the question is addressing the immediate management.</p> <p>Faecal impaction</p> <p>If the patient has faecal impaction, try:</p> <ul style="list-style-type: none">• Bisacodyl suppositories



	<ul style="list-style-type: none">• Arachis oil retention enema to soften• Phosphate enema• An alternative is polyethylene glycol, Movicol taken for three days• Manual removal (with midazolam, morphine, or caudal anaesthesia)• Once successful it is imperative to start regular oral measures to prevent recurrence of the problem <p>To be more specific in managing faecal impaction: <i>These are quite specific and are unlikely to be asked in the PLAB exam but nonetheless good for your practice.</i></p> <ul style="list-style-type: none">• For hard stools, consider using a high dose of an oral macrogol• For soft stools, or for hard stools after a few days treatment with a macrogol, consider starting or adding an oral stimulant laxative.• If the response to oral laxatives is insufficient or not fast enough, consider:<ul style="list-style-type: none">• Using a suppository: bisacodyl for soft stools; glycerol alone, or glycerol plus bisacodyl for hard stools.• Using a mini enema <p>The final choice of laxative will depend on individual preference and what has previously been tried.</p>
61.	<p>A 17 year old boy has abdominal pain and diarrhoea for the last 3 months. He has lost 7 kg in the last 2 months. On colonoscopy, deep ulcers and skip lesions are noticed on the mucosa. Perianal skin tags were seen on examination. What is the SINGLE most likely diagnosis?</p> <p>A. Crohn's disease B. Irritable bowel syndrome C. Coeliac disease D. Diverticulitis E. Ulcerative colitis</p> <p>The diagnosis of Crohn's disease is quite clear here. Skip lesions is a give away that this is Crohn's disease. This is supported by the weight loss and the perianal skin tags.</p>
62.	<p>A 70 year old woman is reviewed following a course of oral clindamycin for a right lower limb cellulitis. She recently developed bloody diarrhoea and abdominal pain. She has a temperature of 38.8°C. Her blood tests show:</p> <p>Haemoglobin 125 g/L White blood cells 17 x 10⁹/L CRP 140 mg/l</p> <p>What is the SINGLE most likely management?</p>



- A. Oral co-amoxiclav
- B. IV piperacillin + tazobactam
- C. IV ceftriaxone
- D. Oral metronidazole**
- E. Continue oral clindamycin

Clostridium difficile

Clostridium difficile is a Gram positive rod often encountered in hospital practice. It produces an exotoxin which causes intestinal damage leading to a syndrome called pseudomembranous colitis. *Clostridium difficile* develops when the normal gut flora are suppressed by broad-spectrum antibiotics.

Features

- diarrhoea - may be mild diarrhoea or serious bloody diarrhoea with systemic upset
- abdominal pain
- a raised white blood cell count is characteristic

Diagnosis

Clostridium difficile toxin (CDT) detected in the stool

Management

- Stop the causative antibiotic (if possible)
- first-line therapy is oral metronidazole
- if severe or not responding to metronidazole then oral vancomycin may be used

Note: Treatment is not usually needed if patient is asymptomatic

- 63.** A 61 year old man presents with fatigue and palpitations. His past surgical history includes an ileal resection which was performed one year ago. An FBC was requested and the results are as follows:

Haemoglobin 93 g/L

Mean cell volume (MCV) 111 fL

What is the SINGLE most likely diagnosis?

- A. Anaemia of chronic disease
- B. Iron deficiency
- C. Folate deficiency
- D. Haemolytic anemia
- E. Vitamin B12 deficiency**



	<p>High MCV and low Hb → Macrocytic anaemia</p> <p>These findings together with a history of ileal resection whereby malabsorption of B12 could occur, points towards the diagnosis of B12 deficiency.</p>
64.	<p>A 46 year old woman presents with sudden episode of abdominal pain which started about 5 hours ago. The pain is located in the epigastrium and radiates to her back. She has vomited twice since the onset of attack. The pain is made worse by lying flat on her back and she is more comfortable sitting up and bending forwards. She was informed of the presence of gallstones in her gall bladder four weeks earlier when she reported pain in the right hypochondrium. Her temperature is 38.4°C, blood pressure is 120/85 mmHg, and pulse rate is 115 beats/minute. There is no presence of jaundice but there is marked tenderness in the epigastrium. What is the SINGLE most appropriate investigation?</p> <p>A. Abdominal X-ray B. Serum amylase C. Serum bilirubin D. Barium swallow E. Urea and electrolytes</p> <p>The likely diagnosis is acute pancreatitis. Serum amylase and lipase are appropriate investigations, looking for an elevation of more than 3 times the upper limit of normal.</p> <p>While abdominal x-rays are not useful in the diagnosis of pancreatitis, they are routinely ordered to exclude other potential causes of abdominal pain such as perforation or bowel obstruction.</p> <p>Ultrasound is useful to detect the presence of gallstones but it is not a good diagnostic test for acute pancreatitis. The pancreas is poorly visualised in 25-50% of cases.</p> <p>Urea and electrolytes and liver function test do not directly aid the diagnosis of pancreatitis however, they are helpful in assessing the severity of the disease (e.g. by showing the degree of leucocytosis or of hypovolaemia) or give clues of the aetiology of pancreatitis (e.g. gallstone pancreatitis).</p>
65.	<p>A 24 year old female presents with a 4 month history of bloody diarrhoea, lethargy and weight loss. She complains of abdominal discomfort and passing stools more than 8 times a day. An endoscopy was performed which shows deep ulcers, and skip lesions. What is the SINGLE most likely diagnosis?</p> <p>A. Diverticulitis B. Colon Cancer C. Infective diarrhoea D. Crohn's disease E. Ulcerative colitis</p>



The diagnosis of Crohn's disease is quite clear here. Lethargy and weight loss are non specific signs that can occur in Crohn's disease. The give away here is the deep ulcers, and skip lesions that is seen on endoscopy which is pathognomonic for Crohn's disease.

Note that although Crohn's disease usually has non bloody diarrhoea, it occasionally may present with bloody diarrhoea.

66. A 43 year old lady presents with jaundice. Skin excoriations were seen on physical examination. Blood test reveal a raised alkaline phosphatase with mildly raised alanine transaminase. Antimitochondrial antibodies are found to be positive. What is the SINGLE most likely diagnosis

- A. Hepatitis B
- B. Hepatitis C
- C. Primary biliary cirrhosis**
- D. Primary sclerosing cholangitis
- E. Obstetric cholestasis

The diagnosis here is primary biliary cirrhosis

The classic presentation is itching in a middle-aged woman as we see here.

Often asymptomatic and diagnosed after finding alkaline phosphatase on routine LFT. Lethargy, sleepiness, and pruritus may precede jaundice.

There is an association with Sjögren syndrome.

Antimitochondrial antibodies (AMA) are the hallmark for this disease

To help remember: Think of the M rule for primary biliary cirrhosis

- IgM
- anti-Mitochondrial antibodies
- Middle aged females

If one compares Primary Biliary Cirrhosis and Primary Sclerosing Cholangitis

Primary Biliary Cirrhosis	Primary Sclerosing Cholangitis
<ul style="list-style-type: none">• Autoimmune, idiopathic• Association → Sjogren• Pruritus, ↑ALP• Antimitochondrial antibody (AMA) positive• Management involves ursodeoxycholic acid, cholestyramine	<ul style="list-style-type: none">• Autoimmune, idiopathic• Association → IBD (especially UC)• Pruritus, ↑ALP• ERPC is the most specific test• Management involves ursodeoxycholic acid, cholestyramine



67.	<p>A 30 year old lady complains of intermittent diarrhoea, chronic abdominal pain and tenesmus. Sometimes she notices blood in her stool. What is the SINGLE most likely cause of her symptoms?</p> <p>A. Inflammatory bowel disease B. Diverticulosis C. Irritable bowel disease D. Adenomyosis E. Endometriosis</p> <p>Inflammatory bowel disease remains the best choice among the rest. All the symptoms stated in the question including tenesmus can occur in inflammatory bowel disease.</p> <p>The answer is unlikely to be diverticulosis as diverticulosis is defined as the presence of diverticula which are asymptomatic. This patient has symptoms.</p> <p>Blood in stools is not seen in irritable bowel disease. Remember, passing blood is not a symptom of IBS.</p> <p>The symptoms are not at all consistent with adenomyosis or endometriosis</p>
68.	<p>A 22 year old man presents with a 2 month history of diarrhoea. He says his bowels have not been right for the past few months and he frequently has to run to the toilet. These symptoms seemed to be improving up until two weeks ago and for the past week, he notices the presence of blood when he passes stool. On examination, there are aphthous oral ulcers. He has not lost any weight and has a good appetite. Examination of his abdomen demonstrates mild tenderness in the left lower quadrant but no guarding. What is the SINGLE most likely diagnosis?</p> <p>A. Ulcerative colitis B. Crohn's disease C. Infective diarrhoea D. Colorectal cancer E. Anal Fissure</p> <p>The diagnosis of Ulcerative colitis is quite clear here.</p>
69.	<p>A 23 year old woman has abdominal bloating, weight loss and intermittent diarrhoea. She describes her stools as "frothy" and difficult to flush down the toilet. Her blood test show:</p> <p>Haemoglobin 105 g/L White cell count $7.1 \times 10^9/L$ Platelets $350 \times 10^9/L$ Ferritin 11 ng/ml Vitamin B12 225 ng/L Folate 1.9 mcg/L</p>



	<p>Endomysial antibodies were tested positive. What is the SINGLE most likely diagnosis?</p> <p>A. Coeliac disease B. Ulcerative colitis C. Crohn's disease D. Irritable bowel syndrome E. Giardiasis</p> <p>The anaemia and low ferritin and folate levels are characteristic of coeliac disease. This is in combination with the endomysial antibodies. A jejunal biopsy should be done to confirm this diagnosis.</p>
70.	<p>A 34 year old man presents with slow progressive dysphagia. He has been using H2 blockers for the last year because of retrosternal discomfort. He has not notice any weight loss. A haemoglobin level was done a month ago which reads 13.3g/dL. What is the SINGLE most likely diagnosis?</p> <p>A. Foreign body B. Plummer vinson syndrome C. Pharyngeal pouch D. Peptic stricture E. Esophageal Cancer</p> <p>Peptic strictures have an association with gastro-oesophageal reflux disease and can cause dysphagia.</p> <p>The fact that there is no weight loss and haemoglobin is normal points towards a benign cause. Esophageal cancer at this age group is also uncommon.</p>
71.	<p>A 21 year old woman complains of diarrhoea, and abdominal cramps for the past 5 months. She says that her diarrhoea has recently become bloody. A rectal biopsy was performed and histology was reported as "decreased amounts of goblet cells". What is the SINGLE most likely diagnosis?</p> <p>A. Ulcerative colitis B. Crohn's disease C. Infective diarrhoea D. Colorectal cancer E. Irritable bowel syndrome</p> <p>The diagnosis of Ulcerative colitis is quite clear here. Decreased goblet cells on histology points towards ulcerative colitis.</p>



72.	<p>A 15 year old child complains of right iliac fossa pain and diarrhoea. He has lost 7 kg in the last 2 months. On colonoscopy, skip lesions are noticed on the mucosa. What is the SINGLE most appropriate management?</p> <p>A. Prednisolone B. Mebeverine C. Peppermint oil D. Metronidazole E. Vancomycin</p> <p>The diagnosis of Crohn's disease is quite clear here. Skip lesions is a give away that this is Crohn's disease.</p> <p>Management of Crohn's disease</p> <p><u>Inducing remission</u> 1st line → Oral Prednisolone 2nd line → 5-ASA drugs (e.g. mesalazine)</p> <ul style="list-style-type: none">• azathioprine or mercaptopurine may be used as an add-on medication to induce remission but is not used as monotherapy• metronidazole is often used for isolated perianal disease <p><u>Maintaining remission</u> 1st line → azathioprine or mercaptopurine</p> <p>It is important to know the differences of ulcerative colitis and crohn's disease for PLAB as it is very commonly asked. These are some key differences that will help you with your exam:</p>
73.	<p>A 59 year old man has multiple liver metastasis with the primary tumour originating from the large bowel. He has abdominal pain, and jaundice. On general inspection, he looks cachexic and drowsy. He has significant ascites and oedema seen on both ankles. His family have concerns that he is not having sufficient fluids orally. His urine output is low. He currently takes regular haloperidol 1.5 mg three times a day and lactulose 10ml twice a day. His blood test show:</p> <p>Serum urea 6.2 mmol/L Serum creatinine 85 µmol/L Sodium 129 mmol/L Calcium 2.42 mmol/l Potassium 3.6 mmol/l Albumin 18 g/L Bilirubin 105 µmol/L Alkaline phosphatase (ALP) 411 U/L</p> <p>What is the SINGLE most appropriate management?</p>



	<p>A. Albumin infusion B. Crystalloids intravenously C. Furosemide intravenous D. Fluids via nasogastric tube E. Cease haloperidol</p> <p>This patient has hypoalbuminaemia. When plasma proteins, especially albumin, no longer sustain sufficient colloid osmotic pressure to counterbalance hydrostatic pressure, oedema and ascites develops.</p> <p>Intravenous albumin may be used to increase a colloid osmotic pressure to draw fluid back into the intravascular compartment to reduce the oedema and ascites. It restores intravascular plasma volume with less exacerbation of salt and water overload than isotonic solutions. Albumin infusion produces only a transient effect but it is useful in cases like this where surgery may not be an option and treatment of intravascular fluid deficit and oedema is required. It is also useful to obtain a diuresis in hypoalbuminaemic patients.</p> <p>Haloperidol has no role in causing hypoalbuminaemia.</p>
74.	<p>A 56 year old man comes for a routine check up. He is noted to have increased skin pigmentation, spider angioma and a heart murmur. He has mild joint pain particularly in those of the hands. He rarely drinks alcohol. On examination, his liver is firm and has a span of 10 cm. On further investigations of the heart murmur, he was given the diagnosis of restrictive cardiomyopathy. What is the SINGLE condition that he is most likely at risk of?</p> <p>A. Cerebellar degeneration B. Gallstones C. Renal failure D. Hepatoma E. Hepatic vein thrombosis</p> <p>Hepatoma (more often called hepatocellular carcinoma) is a primary malignancy of the liver. The given scenario has features of haemochromatosis of which is among the causes of restrictive cardiomyopathy. It is a very well known fact that. patients with haemochromatosis have an increased risk of developing hepatocellular carcinoma.</p> <p>The liver is a primary storage area for iron and will naturally accumulate excess iron. Over time the liver is likely to be damaged by iron overload causing cirrhosis. Cirrhosis and haemochromatosis together will increase the risk of hepatocellular carcinoma.</p> <p>Haemochromatosis Hereditary haemochromatosis (HHC) is an autosomal recessive genetic disease in which increased intestinal absorption of iron causes accumulation in tissues, especially the liver, which may lead to organ damage. Other organs that may be affected by iron deposits include the pancreas, joints, heart, skin and gonads.</p>



	<p>Presentation</p> <ul style="list-style-type: none">• Early diagnosis is difficult because HHC is often asymptomatic until the late stages of disease. Symptoms usually start between ages 40-60• Initial symptoms are usually vague and nonspecific - eg, fatigue, weakness and heart problems• HHC may be diagnosed incidentally - eg, following abnormal serum ferritin or LFTs• Symptoms of advanced disease include:<ul style="list-style-type: none">○ Diabetes○ Bronzing of the skin○ Hepatomegaly○ Cirrhosis○ Arthropathy○ Cardiac disease - arrhythmias or cardiomyopathy○ Neurological or psychiatric symptoms - impaired memory, mood swings, irritability, depression <p><i>Remember the triad of diabetes, hepatomegaly and bronze pigmentation. This is seen in 30% of patients with haemochromatosis and is a common presentation given in the questions.</i></p>
75.	<p>A 35 year old woman has sudden onset epigastric pain, chills and nausea. She gave birth to a health baby 2 days ago. Her blood pressure was normal throughout pregnancy. Her temperature is 37.3°C and her blood pressure is 139/90 mmHg. Urinalysis reveals no proteins. Her blood test show:</p> <p>Alkaline phosphatase (ALP) 420 U/L Alanine transferase (ALT) 650 U/L Bilirubin 25 µmol/L International normalized ratio (INR) 1.0 Haemoglobin 101 g/L Platelets 350 x 10⁹/L White cell count (WCC) 13.5 x 10⁹/L</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Acute cholecystitis B. Pre-eclampsia C. Obstetric cholestasis D. Acute fatty liver of pregnancy E. HELLP syndrome</p> <p>The history of sudden onset epigastric pain, chills, and nausea in the postpartum period with a likely history of an uneventful pregnancy makes cholecystitis the most likely diagnosis.</p> <p>Symptomatic gallstone disease is the second most common abdominal emergency in pregnant women. Pregnancy alters bile composition and gallbladder emptying slows in the second trimester, increasing the risk of gallstones.</p>



	<p>The raised ALT is of something to note. The causes of raised liver enzymes in postpartum period is endless. They include:</p> <ul style="list-style-type: none">• Pregnancy-related liver diseases such as:<ul style="list-style-type: none">○ Obstetric cholestasis○ Pre-eclampsia, eclampsia,○ HELLP syndrome○ Acute fatty liver of pregnancy• Liver diseases unrelated to pregnancy<ul style="list-style-type: none">○ Viral hepatitis○ Autoimmune liver disease○ Wilson's disease○ Budd-Chiari syndrome○ Acute cholecystitis○ Drug-induced hepatotoxicity <p>As there is no protein in the urine and blood pressure has been normal throughout pregnancy, pre-eclampsia is unlikely. As haemoglobin levels and platelet levels are within a normal range for someone who has just delivered a baby, HELLP syndrome is unlikely. Obstetric cholecystitis may have aminotransferase levels as high as 20 times the normal limit, but the raised bile acids would cause significant pruritus which would be the main presenting feature rather than epigastric pain.</p> <p>Biliary colic occurs when a stone temporarily occludes the cystic duct. There is a colicky pain in the right upper quadrant radiating to right shoulder. The episode is usually self limiting. Ultrasound establishes diagnosis of gallstones. The diagnostic accuracy of ultrasound for detecting gallstones is 95%.</p> <p>The main difference of biliary colic and acute cholecystitis is the inflammatory component. In acute cholecystitis there is local peritonism, fever, and elevated WCC.</p>
76.	<p>A 33 year old pregnant woman develops severe epigastric pain, nausea and vomiting at 35 weeks gestation. She was diagnosed with pre-eclampsia 2 weeks ago. On examination, she has yellow sclerae. Laboratory investigations show a deranged liver function, low platelets, low serum glucose, raised serum ammonia. What is the SINGLE most likely diagnosis?</p> <p>A. Acute fatty liver of pregnancy B. Hyperemesis gravidarum C. Biliary colic D. HELLP syndrome E. Autoimmune hepatitis</p> <p>Acute fatty liver of pregnancy (AFLP) and HELLP (Haemolysis, Elevated Liver enzymes, Low Platelets) syndrome both have low platelets and deranged liver function as part of the clinical picture. However, low serum glucose and/or raised serum ammonia are more suggestive of AFLP. Vomiting is also more commonly seen in AFLP than HELLP syndrome.</p>



Acute fatty liver of pregnancy

Acute fatty liver of pregnancy (AFLP) is a rare form of jaundice in pregnancy. It occurs late in pregnancy and may be life-threatening. The aetiology of AFLP is unknown. It is part of the spectrum of disorders related to pre-eclampsia. Differentiation from HELLP (Haemolysis, Elevated Liver enzymes, Low Platelets) syndrome can be difficult as signs and symptoms can overlap.

Risk factors

- Pre-eclampsia → There is associated pre-eclampsia in 30–60% of AFLP
- First pregnancies
- Multiple pregnancy

Presentation

- Presents acutely with:
 - Nausea
 - Vomiting
 - Abdominal pain
 - Fevers
 - Headache
 - Pruritus
 - Jaundice
- Begins typically after 30 weeks of gestation
- It also may also appear immediately after delivery

Severe hypoglycaemia and clotting disorder may develop causing coma and death

Investigations

- Liver transaminases are elevated (ALT is typically elevated more than 500 U/L)
- Raised serum bilirubin
- Hypoglycaemia
- Abnormal clotting with coagulopathy (prolongation of prothrombin and partial thromboplastin times)
- Biopsy would be diagnostic

Management (*Unlikely to be asked in detail for the level of PLAB exam*)

- Treat hypoglycaemia
- Correct clotting disorders
- N-acetylcysteine (NAC) (Unlicensed use)
- Consider early delivery



77. A 41 year old pregnant woman presents to A&E with right upper quadrant pain that started in the last 12 hours and is gradually worsening. She has dark urine and pale stools for the last 2 days. She is noted to have a yellow sclera on examination. Her blood pressure is 145/95 mmHg. What is the SINGLE most appropriate investigation?

A. Ultrasound of abdomen

- B. Urine protein: creatinine ratio
- C. Urinary bilirubin
- D. Urinary urobilinogen
- E. Alkaline phosphatase

Symptomatic gallstone disease is the second most common abdominal emergency in pregnant women. Pregnancy alters bile composition and gallbladder emptying slows in the second trimester, increasing the risk of gallstones.

Do not be misled into thinking this is pre-eclampsia due to the high blood pressure and RUQ pain. Blood pressure will be raised in any patient who is in pain. Furthermore, pre-eclampsia does not present with symptoms of jaundice.

Ultrasound of abdomen is the best option here as an ultrasound will most likely show the cause which is likely gallstones in this stem.

Raised urinary bilirubin with absent or reduced urobilinogen is suggestive of obstructive jaundice and will merely confirm an obstructive jaundice picture.

Alkaline phosphatase will also be raised with gallstones causing bile duct obstruction but also can be seen raised in pregnancy. Alkaline phosphatase is not a useful test in pregnancy because of elevated levels from the placenta.

Biliary colic

Occurs when a stone temporarily occludes the cystic duct. There is a colicky pain in the right upper quadrant radiating to right shoulder. The episode is usually self limiting. Ultrasound establishes diagnosis of gallstones.

The main difference of biliary colic and acute cholecystitis is the inflammatory component. In acute cholecystitis there is local peritonism, fever, and elevated WCC.

Management includes:

Analgesia, rehydrate, nil by mouth.

Elective laparoscopic cholecystectomy is usually indicated



78.	<p>A 33 year old lady who has been traveling around Europe for a few months now returns to the United Kingdom with lethargy, abdominal pain, loose watery diarrhoea and bloating. She has lost a few kilograms since coming back from the trip. Her physical examination remains unremarkable with abdominal examination having mild generalised tenderness. What is the SINGLE most likely organism causing her symptoms?</p> <p>A. <i>Campylobacter jejuni</i> B. <i>Salmonella enterica</i> C. <i>Shigella dysentery</i> D. <i>Staphylococcus aureus</i> E. <i>Giardia lamblia</i></p> <p>The two top choices for the cause of the diarrhoea in this stem are <i>Campylobacter</i> and <i>Giardia</i>. As the patient has watery diarrhoea instead of bloody diarrhoea, giardiasis fits best.</p> <p>In the UK, many cases of giardiasis are associated with recent foreign travel. Giardiasis can present as traveller's diarrhoea with symptoms lasting more than ten days. Symptoms of giardiasis include bloating, flatulence, abdominal pain, loose stool and explosive diarrhoea. The symptoms may begin after returning from travel, and may be associated with weight loss. Giardiasis can cause both acute and chronic diarrhoea. In this stem, it is likely chronic diarrhoea as there is a history of weight loss.</p> <p>The clinical features of giardiasis are slightly different compared to campylobacter enteritis. In campylobacteriosis, clinical features usually include a prodromal illness of headache and myalgia with fevers as high as 40°C. This is followed by abdominal pains and profuse diarrhoea. The stool is often bloody. The reason many choose campylobacter as the answer is because campylobacter is the commonest bacterial cause of infectious intestinal disease in the UK. But this is incorrect for this stem.</p> <p>Important key notes:</p> <ul style="list-style-type: none">• <i>Campylobacter, Shigella, Salmonella</i> usually cause bloody diarrhoea.• <i>Giardiasis</i> causes non-bloody diarrhoea• <i>Giardiasis</i> can cause chronic diarrhoea associated with weight loss• <i>Campylobacter</i> has a prodrome of headache, myalgia and fever
79.	<p>A 21 year old man has been brought to A&E by his friends as he is having a yellow sclera and yellowing of the skin. He has recently been having flu-like symptoms and a non-productive cough. A urine dipstick was performed and was normal. His blood results show:</p> <p>Haemoglobin 129 g/dl Reticulocytes 1.2% Bilirubin 44 µmol/L Alkaline phosphatase (ALP) 88 Alanine transferase (ALT) 24 Albumin 42</p>



	<p>What is the SINGLE most likely diagnosis?</p> <p>A. Acute hepatitis B. Gilbert's syndrome C. Dubin Johnson Syndrome D. Glucose-6-phosphate dehydrogenase E. Infectious mononucleosis</p> <p>Gilbert's syndrome is usually an autosomal recessive disorder and is a common cause of unconjugated hyperbilirubinaemia due to decreased UGT-1 activity which is the enzyme that conjugates bilirubin with glucuronic acid.</p> <p>It may go unnoticed for many years and usually presents in adolescence with intermittent jaundice occurring during illness, physical exertion, stress or fasting. In this stem, the jaundice was precipitated by infection.</p> <p>Investigations usually show a mildly raised serum bilirubin but the other LFTs remain within normal ranges as seen in this stem. FBC would show normal reticulocyte count - this helps distinguish Gilbert's syndrome from other types of haemolysis. Urine dipsticks would be seen as normal as it is the unconjugated bilirubin that is high (not the conjugated bilirubin as would be seen in Dubin Johnson syndrome).</p> <p><i>Remember, viral infections are common triggers for a rise in the bilirubin in patients with Gilbert's syndrome.</i></p>
80.	<p>A 17 year old boy presents to A&E after his mother has noticed that his sclera has a yellowish tint. He has been taking over the counter medication for an upper respiratory tract infection for the past few days. He is otherwise well and has no significant past medical history. What is the SINGLE most likely diagnosis?</p> <p>A. Acute hepatitis B. Gilbert's syndrome C. Drug induced haemolysis D. Glucose-6-phosphate dehydrogenase E. Acute cholecystitis</p> <p>Gilbert's syndrome is usually an autosomal recessive disorder and is a common cause of unconjugated hyperbilirubinaemia due to decreased UGT-1 activity which is the enzyme that conjugates bilirubin with glucuronic acid.</p> <p>It may go unnoticed for many years and usually presents in adolescence with intermittent jaundice occurring during illness, physical exertion, stress or fasting. In this stem, the jaundice was precipitated by infection.</p> <p><i>Remember, viral infections are common triggers for a rise in the bilirubin in patients with Gilbert's syndrome.</i></p>



81.	<p>A 47 year old women diagnosed with coeliac at the age of three has recently developed diarrhea and weight loss for the past three months. What is the SINGLE most likely reason for this?</p> <p>A. Tapeworm infection B. Lymphoma of the small intestine C. Tuberculosis D. Giardia E. Irritable bowel syndrome</p> <p>One must remember the cancer risk associated with coeliac disease. Intestinal lymphoma is one of them.</p>
82.	<p>A 31 year old female presented with complains of chest pain and difficulty in swallowing liquids and solids. She has also been suffering from recurrent chest infection for the past few months. What is the SINGLE most likely diagnosis?</p> <p>A. Schatzki ring B. Plummer-Vinson syndrome C. Achalasia cardia D. Peptic stricture E. Oesophageal carcinoma</p> <p>The diagnosis here is achalasia. In achalasia, dysphagia is often with both fluids and solid and in fact solids are affected more than soft food or liquids.</p> <p>It can sometimes present as chest pain or with recurrent chest infections. The chest infections or aspiration pneumonia results from untreated achalasia that leads to nocturnal inhalation of material lodged in the oesophagus and aspiration pneumonia.</p> <p>Achalasia</p> <ul style="list-style-type: none">Achalasia is the idiopathic loss of the normal neural structure of the lower oesophageal sphincter. The lower oesophageal sphincter is usually contracted to prevent the acidic gastric contents from refluxing backward into the oesophagus. For swallowing to occur, there is normally a relaxation process of the lower oesophageal sphincter in order to allow food to pass into the stomach. Inhibitory neurons are stimulated, blocking the impulses that cause constriction. In achalasia, these inhibitory neurons have been lost, as well as the ability to relax the lower oesophageal sphincter. <p>Presentation:</p> <ul style="list-style-type: none">Progressive dysphagia to both solids and liquids simultaneously and can have regurgitation several hours after eatingThere can also be weight lossAchalasia has no relationship with alcohol or tobacco useNote: This is different from oesophageal cancer, which not only usually presents with dysphagia to solid foods that progresses to difficulty swallowing liquids, but also is more common in older patients with a long history of alcohol and tobacco use.



	<p>Investigations:</p> <ul style="list-style-type: none">• Barium swallow shows dilation of the esophagus, which narrows into a "bird's beak" at the distal end• The most accurate test overall is esophageal manometry. Manometry shows increased lower oesophageal resting pressure• <p>Management:</p> <ul style="list-style-type: none">• Dilatation of the lower oesophageal sphincter
83.	<p>A 33 year old female has intermittent diarrhoea and abdominal bloating which is usually exacerbated by consumption of wheat and eggs. She has been feeling more tired in the past few months. She has no significant weight loss. What is the SINGLE most likely diagnosis?</p> <p>A. Coeliac disease B. Ulcerative colitis C. Crohn's disease D. Gastroenteritis E. Malabsorption</p> <p>The best answer here is Coeliac disease. Whilst it is true that coeliac disease causes malabsorption which accounts for the intermittent diarrhoea and abdominal bloating, the more specific answer is still Coeliac disease since there is a history of wheat in the diet.</p> <p>Eggs actually do not exacerbate coeliac disease as it is not gluten however her meals which contain wheat is likely the cause of her malabsorption symptoms.</p>



SAMPLE



GENERAL SURGERY



1.	<p>A 24 year old woman presents with a 1 cm small smooth, firm, mobile mass in her left breast. She is very anxious and wants a form of investigation. What is the SINGLE most appropriate investigation to perform?</p> <p>A. Mammography B. Ultrasound scan of breast C. Fine needle aspiration cytology D. Magnetic resonance imaging scan of breast E. Computerised tomography scan of breast</p> <p>Generally for a women younger than 35 years old, an ultrasound scan is the preferred radiological assessment. This is because young women have increased tissue density which reduces sensitivity and specificity of a mammography.</p>
2.	<p>A 39 year old woman has been having tingling and numbness of her thumb, index and middle fingers for a while. She has been treated with local steroids but there was no improvement. She has planned to undergo a surgical procedure. What is the SINGLE most likely structure to be incised?</p> <p>A. Flexor digitorum profundus B. Transverse carpal ligament C. Palmar aponeurosis D. Extensor retinaculum E. Antebrachial fascia</p> <p>During open carpal tunnel release surgery, the transverse carpal ligament is cut, which releases pressure on the median nerve and relieves the symptoms of carpal tunnel syndrome.</p>
3.	<p>What anatomical structure is pierced during a midline port insertion during a laparoscopic cholecystectomy?</p> <p>A. External iliac muscle B. Linea alba C. Rectus abdominis D. Conjoined tendon E. Intercostal muscles</p> <p>The linea alba is the correct answer here. As this is a midline port insertion, the linea alba is the main structure that would be pierced.</p> <p>The exposure of the linea alba is usually performed by sharp dissection. After which insertion of a trocar can be done.</p>



4.	<p>A 52 year old man has hoarseness of voice following a thyroid surgery a week ago. There has been no signs of improvement. What is the SINGLE most likely anatomical structure(s) involved?</p> <p>A. Bilateral recurrent laryngeal nerve B. Unilateral recurrent laryngeal nerve C. Unilateral external laryngeal nerve D. Bilateral external laryngeal nerve E. Vocal cords</p> <p>There is a risk of recurrent laryngeal nerve injury post thyroidectomy. If it is unilateral, it results in hoarseness. If it is bilateral, it results in aphonia and airway obstruction. Unilateral damage is more common than bilateral laryngeal nerve injury.</p>
5.	<p>A 55 year old man has been admitted for an elective herniorrhaphy. Which among the following is the SINGLE most likely reason to postpone his surgery?</p> <p>A. History of asthma B. BMI > 30 C. Deep venous thrombosis 2 years ago D. Diastolic BP of 90 mmHg E. Myocardial infarction 2 months ago</p> <p>After a myocardial infarction, elective surgery should not be performed for the next 6 months as there is an increased risk of mortality for this specific group.</p>
6.	<p>A 55 year old man with cirrhosis of the liver complains of tiredness and right upper quadrant pain over the last few months. He has lost 8 kg in the last 2 months. The liver is palpable on abdominal examination. What is the SINGLE most appropriate investigation?</p> <p>A. CA 125 B. CA 15-3 C. CA 19-9 D. Carcinoembryonic antigen (CEA) E. Alpha-fetoprotein (AFP)</p> <p>The signs and symptoms and history of cirrhosis are indicative of hepatocellular carcinoma. Alpha-fetoprotein (AFP) is a good screening test for hepatocellular carcinoma.</p>



Common tumour markers															
<table><tr><th>Tumour marker</th><th>Association</th></tr><tr><td>CA 125</td><td>Ovarian cancer</td></tr><tr><td>CA 19-9</td><td>Pancreatic cancer</td></tr><tr><td>CA 15-3</td><td>Breast cancer</td></tr><tr><td>Prostate specific antigen (PSA)</td><td>Prostatic carcinoma</td></tr><tr><td>Carcinoembryonic antigen (CEA)</td><td>Colorectal cancer</td></tr><tr><td>Alpha-fetoprotein (AFP)</td><td>Hepatocellular carcinoma, teratoma</td></tr></table>	Tumour marker	Association	CA 125	Ovarian cancer	CA 19-9	Pancreatic cancer	CA 15-3	Breast cancer	Prostate specific antigen (PSA)	Prostatic carcinoma	Carcinoembryonic antigen (CEA)	Colorectal cancer	Alpha-fetoprotein (AFP)	Hepatocellular carcinoma, teratoma	
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7.	<p>A 60 year old woman has lower abdominal discomfort and mild abdominal distention. On pelvic examination, a nontender, solid irregular right adnexal mass is felt. Her pap smear done a year ago was normal. What is the SINGLE most appropriate tumour marker to request for?</p> <p>A. CA 125 B. CA 15-3 C. CA 19-9 D. CA 15-3 E. Alpha-fetoprotein (AFP)</p> <p>A pelvic mass that is identified after menopause should raise the suspicion of ovarian cancer. Remember that in postmenopausal women, the ovaries should normally be atrophic so if they are felt, think of ovarian carcinoma.</p> <p>Among the above options, CA 125 should be taken for the possibility of an ovarian epithelial cancer.</p>														
8.	<p>A 50 year old man is admitted for an elective herniorrhaphy. Which SINGLE best criteria would lead to his elective procedure being postponed?</p> <p>A. Systolic blood pressure of 110 mmHg B. Myocardial infarction 2 months ago C. Haemoglobin of 12 g/dL D. Pain around the hernia E. Abdominal distention</p> <p>After a myocardial infarction, elective surgery should not be performed for the next 6 months as there is an increased risk of mortality for this specific group.</p>														



9.	<p>A 57 year old man complains of symptoms of vomiting, tiredness, and palpitations. He has lost 8 kg in the last 3 months. On examination, hepatomegaly and ascites is noted. He has a palpable left supraclavicular mass. Records show that he is blood group A. What is the SINGLE most likely diagnosis given the symptoms and risk factors?</p> <p>A. Gastric carcinoma B. Colorectal carcinoma C. Peptic ulcer disease D. Atrophic gastritis E. Krukenberg tumor</p> <p>It is clear that this is gastric carcinoma. The vomiting, tiredness, weight loss are general features of gastric cancer. In addition, the palpitation are a symptom of anaemia. Hepatomegaly and ascites are late features of gastric cancer. The lump at the left supraclavicular region known as a Troisier's sign (an enlarged left supraclavicular node - Virchow's node), It is indicative of gastric cancer. People with blood group A are at a higher risk of gastric cancer.</p> <p>Gastric cancer</p> <p>Risk factors and Associations</p> <ul style="list-style-type: none">- Increasing age- H. pylori infection- blood group A- gastric adenomatous polyps- pernicious anaemia- Smoking- diet: salty, spicy, nitrates <p>Presentation</p> <ul style="list-style-type: none">- Nonspecific with dyspepsia, weight loss, vomiting, dysphagia and anaemia.- The majority of patients present with advanced disease and alarm symptoms such as weight loss, vomiting, anorexia, abdominal pain and anaemia.- Signs suggesting incurable disease - eg, epigastric mass, hepatomegaly, jaundice, ascites, Troisier's sign (an enlarged left supraclavicular node - Virchow's node).
10.	<p>A 68 year old male presents with swelling in the lower pole of the parotid gland. This swelling has been slow growing for the past 7 years. On examination, the parotid gland is firm in consistency. What is the SINGLE most probable diagnosis?</p> <p>A. Pleomorphic adenoma B. Adenolymphoma C. Mikulicz's disease D. Parotiditis E. Frey's syndrome</p>



	<p>Pleomorphic adenoma</p> <ul style="list-style-type: none">- Also called benign mixed tumour- It is the most common tumour of the parotid gland and causes over a third of submandibular tumours- Features- Presents around middle age- Slow-growing and asymptomatic- Solitary- Painless- Usually mobile- Firm single nodular mass <p>Though it is classified as a benign tumor, pleomorphic adenomas have the capacity to undergo malignant transformation.</p> <p>Treatment involves removing by superficial parotidectomy or enucleation</p>
11.	<p>A 62 year old has per rectal bleeding and painful defecation. In the last 2 months, he has noticed a change in bowel habit. A full blood count shows slight anaemia. What is the SINGLE most likely diagnosis?</p> <p>A. Colorectal carcinoma B. Coeliac disease C. Crohn's disease D. Ulcerative colitis E. Irritable bowel syndrome</p> <p>Colorectal cancer</p> <p>Clinical features</p> <p><u>Rectal location</u></p> <ul style="list-style-type: none">- PR bleeding. Deep red on the surface of stools.- Change in bowel habit. Difficulty with defecation, sensation of incomplete evacuation, and painful defecation (tenesmus) <p><u>Descending-sigmoid location</u></p> <ul style="list-style-type: none">- PR bleeding. Typically dark red- Change in bowel habit <p><u>Right-sided location</u></p> <ul style="list-style-type: none">- Iron deficiency anaemia may be the only elective presentation- Weight loss- Mass in right iliac fossa- Disease more likely to be advanced at presentation



	<p><u>Emergency presentations</u></p> <p>Up to 40% of colorectal carcinomas will present as emergencies.</p> <ul style="list-style-type: none">- Large bowel obstruction (colicky pain, bloating, bowels not open)- Perforation with peritonitis- Acute PR bleeding
12.	<p>A 32 year old man is about to undergo an elective inguinal hernia surgery. His blood tests show:</p> <p>Haemoglobin 82 g/L Mean cell volume 70 fL White cell count $5 \times 10^9/L$ Platelets $180 \times 10^9/L$</p> <p>What is the SINGLE most appropriate next action?</p> <p>A. Investigate and postpone the surgery B. Blood transfusion and proceed with surgery C. Blood transfusion and defer surgery D. Continue with surgery with 2 units cross matched blood on stand by E. Platelet transfusion and proceed with surgery</p> <p>For elective procedures, proceed only if haemoglobin is above 100 g/L (10 g/dL). If haemoglobin is lower than that, defer the operation and investigate first. If haemoglobin was below 80 g/L (8 g/dL) and patient was symptomatic, then transfuse with blood.</p>
13.	<p>A 55 year old male presents with longstanding gastric reflux, dysphagia and chest pain. He says it came on gradually and initially only noticed it with solid food but more recently has been having symptoms with soft foods also. Barium swallow shows irregular narrowing of the mid-thoracic oesophagus with proximal shouldering. What is the SINGLE most appropriate diagnosis?</p> <p>A. Achalasia B. Oesophageal spasm C. Gastro-oesophageal reflux disease (GORD) D. Barrett's oesophagus E. Oesophageal carcinoma</p> <p>The progressive nature of symptoms (first solids and now liquids) suggests a growing obstruction and points to a diagnosis of oesophageal malignancy. Achalasia would present with inability to swallow both liquids and solids from the outset.</p> <p>Oesophageal cancer Adenocarcinoma has now overtaken squamous cell carcinoma as the most common type of oesophageal cancer</p>



	<p>Risk factors</p> <ul style="list-style-type: none">- Smoking → <i>risk factor for both adenocarcinoma and squamous cell carcinoma, but associated with a much higher risk for squamous cell carcinoma than adenocarcinoma.</i>- Alcohol- GORD- Barrett's oesophagus → which is a precursor of adenocarcinoma- Achalasia → <i>Chronic inflammation and stasis from any cause increase the risk of oesophageal squamous cell carcinoma</i> <p><i>Very often in the stem, there would be a patient with a history of gastro-oesophageal reflux disease (GORD) or Barrett's oesophagus. Sometimes, they would give a history of increasing dysphagia and weight loss.</i></p> <p>Diagnosis</p> <ul style="list-style-type: none">- Upper GI endoscopy with brushings and biopsy of any lesion seen is the first line test- CT or MRI scan of the chest and upper abdomen is performed for staging purposes
14.	<p>A 57 year old male presents with sudden onset of severe abdominal pain and rigidity. The pain initially started as left lower quadrant pain but is now generalized. He has a fever and a pulse of 135 beats/minute. He has no past medical or surgical history of note and he is not taking any regular medications. What is the SINGLE most likely diagnosis?</p> <p>A. Intussusception B. Bowel ischaemia C. Sigmoid volvulus D. Perforated diverticulum E. Zenker's diverticulum</p> <p>Sudden onset of severe abdominal pain, rigidity, left iliac fossa pain in combination with tachycardia and fever are in favour of a perforated diverticulum.</p> <p>A perforated diverticulum is a very rare complication of diverticulitis.</p> <p>Intussusception → is unlikely as it presents with nonspecific abdominal pain which is recurrent. Occasionally, they present with nausea and vomiting as well.</p> <p>Bowel ischaemia → also unlikely as it usually presents with moderate-to-severe colicky or constant and poorly localised pain. A striking feature is that the physical findings are out of proportion to the degree of pain and, in the early stages, there may be minimal or no tenderness and no signs of peritonitis. In the later stages typical symptoms of peritonism develop, with rebound guarding and tenderness. In the stem they would also likely give some clues if they would like you to pick bowel ischaemia. Example, they may include atrial fibrillation in part of the history.</p> <p>Sigmoid Volvulus → Another unlikely answer. Most often it presents with sudden-onset colicky lower abdominal pain associated with severe abdominal distension. Patients would</p>



	<p>also be unable to pass either flatus or stool. Vomiting would occur later. Note that hypotension and an elevated temperature may be present if there is colonic perforation. However, given that there was another choice in the question of a perforation (perforated diverticulum), that would be a better answer.</p> <p>Zenker's diverticulum → Is definitely incorrect as Zenker's diverticulum represents a pharyngeal pouch and does not present with abdominal pain. The usual presenting features are dysphagia, regurgitation, aspiration, chronic cough and weight loss.</p>
15.	<p>A 28 year old pregnant woman with polyhydramnios comes for an anomaly scan at 31 weeks. On ultrasound scan, there was no gastric bubble seen. What is the SINGLE most likely diagnosis?</p> <p>A. Duodenal atresia B. Oesophageal atresia C. Gastroschisis D. Exomphalos E. Diaphragmatic hernia</p> <p>Diagnosis of oesophageal atresia may be suspected antenatally because of polyhydramnios and an absent fetal stomach bubble detected on ultrasound.</p> <p>Oesophageal atresia</p> <p><u>Prenatal signs:</u> Polyhydramnios; small stomach, absent fetal stomach bubble detected on ultrasound</p> <p><u>Postnatal:</u> Cough, airway obstruction, secretions, blowing bubbles, distended abdomen, cyanosis, aspiration. Inability to pass a catheter into the stomach. X-rays show it coiled in the oesophagus.</p>
16.	<p>A 58 year old patient presents with altered bowel habits and bleeding per rectum. A full blood count shows the presence of mild anaemia. A sigmoidoscopy shows an ulcer. What is the SINGLE most likely diagnosis?</p> <p>A. Colorectal carcinoma B. Coeliac disease C. Crohn's disease D. Ulcerative colitis E. Irritable bowel syndrome</p> <p>Colorectal cancer</p> <p>Clinical features</p> <p><u>Rectal location</u></p> <ul style="list-style-type: none">- PR bleeding. Deep red on the surface of stools.



	<ul style="list-style-type: none">- Change in bowel habit. Difficulty with defecation, sensation of incomplete evacuation, and painful defecation (tenesmus) <p><u>Descending-sigmoid location</u></p> <ul style="list-style-type: none">- PR bleeding. Typically dark red- Change in bowel habit <p><u>Right-sided location</u></p> <ul style="list-style-type: none">- Iron deficiency anaemia may be the only elective presentation- Weight loss- Mass in right iliac fossa- Disease more likely to be advanced at presentation <p><u>Emergency presentations</u></p> <p>Up to 40% of colorectal carcinomas will present as emergencies.</p> <ul style="list-style-type: none">- Large bowel obstruction (colicky pain, bloating, bowels not open)- Perforation with peritonitis- Acute PR bleeding
17.	<p>A 55 year old man has a history of weight loss and tenesmus. He is diagnosed with rectal carcinoma. Which SINGLE risk factor is not associated with rectal carcinoma?</p> <p>A. Smoking B. Family history C. Polyposis syndromes D. Inflammatory bowel disease E. High fibre diet</p> <p>It is quite the opposite. A low fibre diet is a risk factor for colorectal cancers.</p> <p>Risk factors of colorectal cancer</p> <ul style="list-style-type: none">- Family history of colorectal neoplasia: carcinoma; adenoma under the age of 60 years- Past history of colorectal neoplasm: carcinoma, adenoma- Inflammatory bowel disease: ulcerative colitis, Crohn's colitis- Polyposis syndromes: familial adenomatous polyposis (Gardner's syndrome), Turcot's syndrome, attenuated adenomatous polyposis coli, flat adenoma syndrome, hamartomatous polyposis syndromes (Peutz-Jeghers syndrome, juvenile polyposis syndrome, Cowden's syndrome)- Hereditary non-polyposis colorectal cancer (HNPCC)- Diet: rich in meat and fat; poor in fibre, folate and calcium- Sedentary lifestyle, obesity, smoking, high alcohol intake- History of small bowel cancer, endometrial cancer, breast cancer or ovarian cancer



18.	<p>A 62 year old lady with family history of ovarian carcinoma. A pelvis ultrasound scan reveals a complex mass that is 7 cm by 5 cm in the left adnexa. What is the SINGLE most appropriate tumour marker to request for?</p> <p>A. CA 125 B. CA 15-3 C. CA 19-9 D. CA 15-3 E. Alpha-fetoprotein (AFP)</p> <p>A pelvic mass that is identified after menopause should raise the suspicion of ovarian cancer. Remember that in postmenopausal women, the ovaries should normally be atrophic so if they are felt, think of ovarian carcinoma.</p> <p>Among the above options, CA 125 should be taken for the possibility of an ovarian epithelial cancer.</p>
19.	<p>A 67 year old woman presents with a firm, round, painless 5cm lump in her right breast. She has a bruise on the surface and there is no discharge. What is the SINGLE most likely diagnosis?</p> <p>A. Fat necrosis B. Fibroadenoma C. Fibroadenosis D. Duct ectasia E. Breast cancer</p> <p>Fat necrosis feels like a firm, round lump (or lumps) and is usually painless, but in some people it may feel tender or even painful. The skin around the lump may look red, bruised or occasionally dimpled. Like in this question, there was a bruise noticed on the surface. Occasionally fat necrosis can cause the nipple to be pulled in (retracted). Sometimes within an area of fat necrosis cysts containing an oily fluid can occur.</p> <p>Fat necrosis or sclerosing adenosis → is suggested by a firm, solitary localized lump. Confirmed by: appearance on mammogram and benign histology after excision.</p> <p>Fibroadenoma → is suggested by a smooth and mobile lump ('breast mouse'), usually in ages 15–30 years old. They are sometimes described as "breast mice" because they can easily move around within the breast.</p> <p>Fibroadenosis (or fibrocystic disease) → is the most common cause of breast lumps in women of reproductive age. The peak incidence is between 35 and 50 years of age. It is a term used to describe a group of benign conditions that affect the breast. The symptoms of fibroadenosis include breast pain (mastalgia or mastodynia), increase in breast size and lumpiness of the breast (nodularity), particularly just before or during a period</p>



	<p>Duct Ectasia → is suggested by a green or brown nipple discharge.</p> <p>Breast Cancer → is suggested by fixed, irregular, hard, painless lump, nipple retraction, fixed to skin (peau d'orange) or muscle, and local, hard or firm, fixed nodes in axilla.</p>
20.	<p>A 22 year old man presents with haemoptysis. He had a tonsillectomy done 7 days ago. His blood pressure is 120/80 mmHg, pulse rate is 70 beats/minute and respiratory rate is 18 breaths/minute. What is the SINGLE most appropriate next step?</p> <p>A. Blood transfusion B. Oral antibiotics and discharge C. Admit and administer intravenous antibiotics D. Return to theatre and explore E. Intubate</p> <p>Admission and IV antibiotics would be the most appropriate step. The patient should be admitted and the course of bleeding should be observed. Not every patient needs to go to theatre right away. Secondary Haemorrhage are caused by necrosis of an area of blood vessel, related to previous repair and is often precipitated by wound infection.</p> <p>Complications of tonsillectomy</p> <p><u>Intraoperative</u></p> <ul style="list-style-type: none">- Haemorrhage- Dental trauma due to displacement of the mouth gag <p><u>Immediate postoperative</u></p> <p>Haemorrhage; either primary or secondary. The overall bleeding rate is 2.3–3.4% of cases</p> <ul style="list-style-type: none">- Primary haemorrhage happens within the first 24 hours, due to inadequate haemostasis at the time of surgery or the displacement of a tie from the inferior pedicle. It would require return to theatre in up to 1% of patients, although the majority of cases can be managed conservatively.- Secondary, or reactive, haemorrhage occurs after discharge (1–10 days) and is due to separation of the slough in the tonsillar bed. The readmission rate is approximately 5%, of which less than 1% are returned to theatre- Temporary dysphagia
21.	<p>A 60 year old man presents with a lump in the left supraclavicular region. He complains of reduced appetite and he has lost 7 kg in the last two months. What is the SINGLE most probable diagnosis?</p> <p>A. Thyroid carcinoma B. Gastric carcinoma C. Bronchial carcinoma D. Mesothelioma E. Laryngeal carcinoma</p>

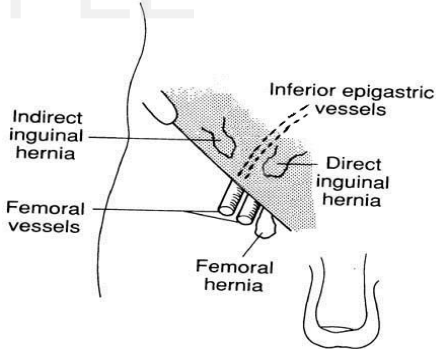


	<p>The lump at the left supraclavicular region known as a Troisier's sign (an enlarged left supraclavicular node - Virchow's node), It is indicative of gastric cancer.</p>
22.	<p>A 49 year old lady had a colostomy closure 4 days ago. She now comes with fluctuating small swelling in the stoma. Her temperature is 37.9°C, respiratory rate is 18/min, pulse rate is 80 bpm. What is the SINGLE most appropriate management?</p> <p>A. Local exploration B. Exploratory laparotomy C. CT abdomen D. Ice packs E. Analgesia and rest</p> <p>Fluctuating small swelling indicates an abscess has formed. Local exploration would be beneficial in this scenario. Stomal abscess is a collection of pus (infection) occurring just under the skin around the site of the stoma. Antibiotics and drainage of the pus is sometimes required</p>
23.	<p>A 44 year old alcoholic presents with painless jaundice. He has lost 9 kg in the last 4 months. His stools are pale and he has dark urine. What is the SINGLE most likely diagnosis?</p> <p>A. Cancer of the head of pancreas B. Cancer in the tail of pancreas C. Chronic pancreatitis D. Biliary colic E. Common duct stone</p> <p>It is important to note that alcohol does not appear to be an independent risk factor but alcohol is a risk factor towards chronic pancreatitis which may lead to pancreatic cancer.</p> <p>The obstructive jaundice is because the tumour on the head of pancreas blocks the biliary tract.</p> <p>Pancreatic cancer 60% of pancreatic tumours are adenocarcinomas which typically occur at the head of the pancreas.</p> <p>Associations</p> <ul style="list-style-type: none">- Smoking- Diabetes- Chronic pancreatitis <p>Features</p> <p><u>Tumours in the head of pancreas</u></p>



	<ul style="list-style-type: none">- Classically painless jaundice (obstructive jaundice → dark urine, pale stools and pruritus) <p><u>Tumours in body or tail of pancreas</u></p> <ul style="list-style-type: none">- Epigastric pain which radiates to the back and relieved by sitting forward <p><u>Either tumour in head or body/tail may cause:</u></p> <ul style="list-style-type: none">- Anorexia, weight loss- Atypical abdominal pain <p>Investigation</p> <ul style="list-style-type: none">- CA 19-9 is non specific but helps assess prognosis- Ultrasound has a sensitivity of around 60-90%- High resolution CT scanning is the investigation of choice <p>Management</p> <ul style="list-style-type: none">- Whipple's resection (pancreaticoduodenectomy) is considered in fit patients with no metastasis- ERCP with stenting is often used for palliation
24.	<p>A 44 year old man has just had a hemi-colectomy for colorectal cancer. He is now post-op and has been put on 100% facemask oxygen. An arterial-blood gas analysis reveals: pH is 7.54 PaO₂ = 28.8kPa PaCO₂ = 3.8kPa He is breathless and dyspneic. What is the SINGLE best management for this patient?</p> <p>A. Physiotherapy B. Ventilate and intubate C. Immediate laparotomy D. IV antibiotics E. Reduce oxygen</p> <p>Physiotherapy is the incorrect answer. If you chose this, you might be thinking of atelectasis as the diagnosis. Atelectasis presents with much of the same signs and symptoms EXCEPT it presents with hypoxia, and here we can see that the PaO₂ is greater than normal.</p> <p>There was no mention of a fever so IV antibiotics is the incorrect answer as well.</p> <p>The diagnosis here is hyperoxaemia or hyperoxia.</p> <p>Hyperoxaemia/Hyperoxia Hyperoxemia or hyperoxia is defined as a PaO₂ > 16kPa (120mmHg). This kind of hyperoxia can lead to oxygen toxicity, caused from the harmful effects of breathing molecular oxygen at elevated partial pressures. Hyperoxia differs from hypoxia in that hyperoxia refers to a state in which oxygen supply is too much, whereas hypoxia refers to the state in which oxygen supply is insufficient.</p>



	<p>Atelectasis</p> <p>Atelectasis is also known as alveolar collapse. This is caused when airways become obstructed, usually by bronchial secretions. Most cases are mild and may go unnoticed. Symptoms are slow recovery from operations, poor colour, mild tachypnoea and tachycardia. Prevention is by pre-operative and postoperative physiotherapy. In severe cases, positive pressure ventilation may be required.</p>
25.	<p>A 35 year old construction worker is diagnosed with indirect inguinal hernia. Which statement below best describes indirect inguinal hernias?</p> <p>A. Passes through the superficial inguinal ring only B. Lies above and lateral to the pubic tubercle C. Does not pass through the superficial inguinal ring D. Passes through the deep inguinal ring E. Passes medial to the inferior epigastric vessels</p> <p>Indirect inguinal hernias occur when abdominal contents protrude through the deep inguinal ring, lateral to the inferior epigastric vessels; this may be caused by failure of embryonic closure of the processus vaginalis. An indirect inguinal hernia like other inguinal hernias protrudes through the superficial inguinal ring. It is the most common cause of groin hernia.</p> <p>In an indirect inguinal hernia, the protrusion passes through the deep inguinal ring and is located lateral to the inferior epigastric artery.</p>  <p>The diagram illustrates the anatomical relationships in the inguinal region. It shows the inferior epigastric vessels (artery and vein) running vertically. The deep inguinal ring is located lateral to these vessels, while the superficial inguinal ring is located medial to them. An indirect inguinal hernia is shown passing through the deep ring, lateral to the vessels. A direct inguinal hernia is shown passing through the superficial ring, medial to the vessels. A femoral hernia is shown passing through the femoral foramen, below the inguinal rings.</p>
26.	<p>A 60 year old man has difficulty in swallowing, regurgitation of food and bad breath. He has been coughing a lot lately. He has loss some weight recently in the last couple of months and is concerned about oesophageal cancer. What is the SINGLE most appropriate initial investigation?</p> <p>A. Barium swallow B. Computed tomography scan of chest C. Manometry D. Skeletal survey E. Endoscopy</p>



	<p>The bad breath and regurgitation of food points towards a pharyngeal pouch. Loss of weight can also occur in pharyngeal pouch. The first step in investigation would be a barium swallow and not an endoscopy. Performing an endoscopy in a patient with a pharyngeal pouch could lead to a perforation.</p> <p>Pharyngeal pouch (Zenker's diverticulum)</p> <p>It is a herniation between the thyropharyngeus and cricopharyngeus muscles that are both part of the inferior constrictor of the pharynx.</p> <p>Presentation</p> <ul style="list-style-type: none">- Dysphagia- History of food sticking and regurgitation- Aspiration (Aspiration pneumonia can also occur)- Chronic cough- Some may present with progressive weight loss- Usually there are no clinical signs but there may be a lump in the neck that gurgles on palpation- Halitosis (bad breath) from food decaying in the pouch. <p>Investigations</p> <ul style="list-style-type: none">- Endoscopy should be avoided as an initial investigation for fear of perforating the lesion. A barium swallow may show a residual pool of contrast within the pouch.
27.	<p>A 72 year old man presents with intermittent difficulty in swallowing with regurgitation of stale food materials. Lately, he has been having chronic cough. What is the SINGLE most likely diagnosis?</p> <p>A. Benign stricture B. Oesophageal carcinoma C. Oesophageal spasm D. Pharyngeal pouch E. Systemic sclerosis</p> <p>The stale food material can only point to one diagnosis which is pharyngeal pouch. The remaining options may have regurgitation but none with stale food.</p> <p>Sometimes, question writers may also give a history of bad breath.</p> <p>Pharyngeal pouch (Zenker's diverticulum)</p> <p>It is a herniation between the thyropharyngeus and cricopharyngeus muscles that are both part of the inferior constrictor of the pharynx.</p> <p>Presentation</p> <ul style="list-style-type: none">- Dysphagia



	<ul style="list-style-type: none">- History of food sticking and regurgitation- Aspiration (Aspiration pneumonia can also occur)- Chronic cough- Some may present with progressive weight loss- Usually there are no clinical signs but there may be a lump in the neck that gurgles on palpation- Halitosis (bad breath) from food decaying in the pouch. <p>Investigations</p> <ul style="list-style-type: none">- Endoscopy should be avoided as an initial investigation for fear of perforating the lesion. A barium swallow may show a residual pool of contrast within the pouch.
28.	<p>A 65 year old woman has been losing weight and feels lethargic. Three years ago, she had a right hemicolectomy for cancer of the ascending colon. She looks pale on examination but there were no abdominal findings. What is the SINGLE most appropriate investigation?</p> <p>A. CA 125 B. CA 15-3 C. CA 19-9 D. Carcinoembryonic antigen (CEA) E. Alpha-fetoprotein (AFP)</p> <p>Carcinoembryonic antigen (CEA) is especially important to monitor response to treatment and identify relapse in tumours showing raised CEA at diagnosis (e.g. colorectal cancers)</p> <p>The history of the right upper quadrant discomfort and the examinations of a palpable liver are descriptions of tumour metastasis to the liver. CEA raises with a metastatic tumours from colon whereas alpha-fetoprotein (AFP) is elevated in primary hepatocellular carcinoma. So do not get confused and pick AFP where there is a clear history of colorectal carcinoma.</p>
29.	<p>A 75 year old man has left-sided earache and discomfort when he swallows. There is ulceration at the back of his tongue and he has a palpable non-tender cervical mass. What is the SINGLE most likely diagnosis?</p> <p>A. Acute mastoiditis B. Dental abscess C. Herpes zoster infection D. Oropharyngeal carcinoma E. Tonsillitis</p> <p>Oropharyngeal carcinoma is the most probable diagnosis here.</p> <p>Acute mastoiditis may have ear pain but does not have discomfort when swallowing and does not present with an ulcer at the back of tongue.</p>



	<p>Herpes zoster infection has a different presentation where patients complain of burning, itching or paraesthesia in one dermatome. Although in Ramsay Hunt Syndrome the presenting feature is often pain deep within the ear, there is usually a rash or herpetic blisters in the distribution of the nervus intermedius.</p> <p>A dental abscess would present with worsening pain which may radiate to the ipsilateral ear, jaw and neck with a bad taste in the mouth, fever, malaise and trismus (inability to open the mouth). The ulceration of the tongue does not fit in this case.</p> <p>Tonsillitis pain may be referred to ears but on examination, reddened and swollen tonsils would definitely be seen. There would also be presence of a fever and again it would not account for the ulceration at the base of the tongue</p> <p>Oropharyngeal carcinoma</p> <p>Features</p> <ul style="list-style-type: none">- Typical old patient, smoker- Persistent sore throat- A lump in the mouth or throat- Referred otalgia- Difficulty swallowing or moving your mouth and jaw- Unexplained weight loss
30.	<p>A 60 year old man has right upper quadrant discomfort. He has lost 10 kg in the last 4 months. On examination, a palpable liver with nodularities was found. Three years ago, he had a right hemicolectomy for a colorectal cancer. What is the SINGLE most appropriate tumour marker to investigate?</p> <p>A. CA 125 B. CA 15-3 C. CA 19-9 D. Carcinoembryonic antigen (CEA) E. Alpha-fetoprotein (AFP)</p> <p>Carcinoembryonic antigen (CEA) is especially important to monitor response to treatment and identify relapse in tumours showing raised CEA at diagnosis (e.g. colorectal cancers)</p> <p>The history of the right upper quadrant discomfort and the examinations of a palpable liver are descriptions of tumour metastasis to the liver. CEA raises with a metastatic tumours from colon whereas alpha-fetoprotein (AFP) is elevated in primary hepatocellular carcinoma. So do not get confused and pick AFP where there is a clear history of colorectal carcinoma.</p>



31.	<p>A 35 year old day 1 post caesarean section complains of inability to void. She denies dysuria but complains of fullness. She was given an epidural for analgesia. What is the SINGLE most appropriate investigation?</p> <p>A. Midstream specimen of urine B. Intravenous urogram (IVU) C. Ultrasound of the kidneys, ureters & bladder D. Serum calcium E. Bladder scan</p> <p>Bladder scan is the correct answer here.</p> <p>Women would be catheterised during the C-section. Infection control and continence guidelines specify that newly inserted urinary catheters should be removed within 48 hours to reduce urinary sepsis and restore normal bladder function as quickly as possible. In a routine elective C-section, this would usually be on the same day or the next day. Most catheters can be removed promptly using a trial without catheter (TWOC) procedure.</p> <p>Postoperative urinary retention occurs due to the effects of the epidural during a C-section. In practice, after taking out the catheter, doctors or nurses would ensure the patient is aware of symptoms of urinary retention such as passing small volumes, hesitancy or having the feeling of a full bladder that is unable to empty.</p> <p>If postvoid residual volumes on bladder scan (PVRVs) are 300-500ml and patient unable to void or uncomfortable, or if PVRV >500ml the usual management would be to reinsert catheter. The actual postvoid residual volumes for catheterisation differ amongst hospitals in the UK but are around similar figures.</p>
32.	<p>An 8 year old child has oral burns is found not to be breathing well. Intubation has failed. His oxygen saturations are low. What SINGLE anatomical structure is likely to be pierced to help this child recover?</p> <p>A. Cricothyroid membrane B. Dura Mater C. Thyroid gland D. Conjoint tendon E. Intercostal muscles</p> <p>A cricothyroidotomy would be indicated here and it involves a 2 cm transverse incision through the skin overlying the cricothyroid membrane and then straight through the cricothyroid membrane.</p>



33.	<p>A 67 year old female underwent a radical mastectomy. She now comes with the complaint of swelling and redness in her right upper limb. Which of the following structures are responsible for these symptoms?</p> <p>A. Epitrochlear lymph node B. Cephalic vein C. Subclavian artery D. Axillary lymph node E. Long thoracic nerve</p> <p>Axillary node clearance Increases risk of lymphoedema greatly. The extent of axillary node clearance performed in invasive breast cancer is dependent on the likelihood of finding involved lymph nodes.</p>
34.	<p>A 53 year old man has become increasingly short of breath in the 3 hours since returning to the ward after a thyroidectomy. He has a temperature of 37.5°C, heart rate of 110 beats/minute, blood pressure of 90/60 mmHg, respiratory rate of 35 breaths/minute, and SaO₂ of 89% on air. There are harsh inspiratory upper airway sounds and reduced air entry bilaterally. What is the SINGLE most appropriate course of action?</p> <p>A. Cut SC sutures B. Adrenaline C. Low molecular weight heparin D. Oxygen 15L via non-rebreather mask E. Salbutamol Nebulizer</p> <p>This is a very common question in PLAB part 1. Once you do a few of these questions, you would soon realise that you would be able to answer this question after reading the first sentence. Anyone with shortness of breath and stridor after a very recent thyroidectomy needs their sutures cut.</p> <p>A rare complication of thyroidectomy is upper airway obstruction secondary to haematoma. To prevent the airway from being totally occluded, it is necessary to release the pressure this haematoma is causing by loosening the tightness of the compartment in which it is building up. If this does not improve his breathing, this man will very soon need intubation. Whilst this is a rare scenario and not important per se, it is still commonly asked in exams.</p> <p>Adrenaline → is used in anaphylaxis, which is a reasonable differential in stridor (due to laryngoedema), but is less likely here than the local effects of the surgery.</p> <p>Low molecular weight heparin → is the treatment for a pulmonary embolus, which does cause sudden breathlessness, but not due to upper airway compromise.</p> <p>Oxygen → is a reasonable response to dropping SaO₂ in someone with healthy lungs but is not the treatment that is going to arrest this man's upper airway occlusion.</p>



	<p>Salbutamol Nebulizer → is useful to open smaller constricting airways (e.g. in asthma or COPD) but will not reduce the pressure effect of a haematoma on the trachea.</p>
35.	<p>A 31 year old woman has an injury to the right external branch of superior laryngeal nerve during a thyroid surgery. What is the SINGLE most likely symptom in this patient?</p> <p>A. Stridor B. Hoarseness C. Aphonia D. Dysphonia E. Aphasia</p> <p>The two most important complications of nerve damages you would need to know during a thyroidectomy is:</p> <ol style="list-style-type: none">1. Recurrent laryngeal nerve damage2. Superior laryngeal nerve damage <p>A unilateral recurrent laryngeal nerve damage results in hoarseness and for bilateral damage symptoms include aphonia and airway obstruction.</p> <p>The external branch of the superior laryngeal nerve is one of the nerves commonly injured in thyroid surgery. Injury to this nerve results in the inability to lengthen a vocal fold and, thus, inability to create a high-pitched sound (dysphonia). They would have a mono toned voice. This would be detrimental to a person who is a professional singer. So in this stem, injury to the external branch of superior laryngeal nerve is likely to produce symptoms of dysphonia.</p>
36.	<p>A 28 year old woman who is 8 weeks pregnant has central abdominal pain for the last 36 hours. The pain is now colicky. She reports no vaginal bleeding. She has vomited once and has had an episode of loose stools earlier in the day. She has a temperature of 37.9°C. On examination, she looks ill, and has rebound tenderness in the right iliac fossa. What is the SINGLE most likely diagnosis?</p> <p>A. Salpingitis B. Appendicitis C. Ectopic pregnancy D. Ovarian torsion E. Uterine fibroid</p> <p>The pain that has shifted towards the right iliac fossa and the fact there is a positive McBurney's sign and loose stools makes the diagnosis of appendicitis more likely. One cannot rule out ectopic pregnancy and so ideally an ultrasound scan would take place to confirm that the pregnancy is in utero. However, the clinical features in the above stem clearly show evidence of an acute appendicitis.</p>



37. A 40 year old manual worker presents with a swelling in the groin. He says he noticed the appearance earlier today and it is accompanied by pain. On examination, a mass is found to be just above and lateral to the pubic tubercle. On examination, the mass is reducible and impulse on coughing is seen. What is the SINGLE most likely diagnosis?

A. Inguinal hernia

B. Femoral artery aneurysm

C. Femoral hernia

D. Incarcerated hernia

E. Strangulated hernia

The first hint here is his sex (male) and his occupation (manual worker). In adults, male sex and heavy lifting are risk factors for inguinal hernias

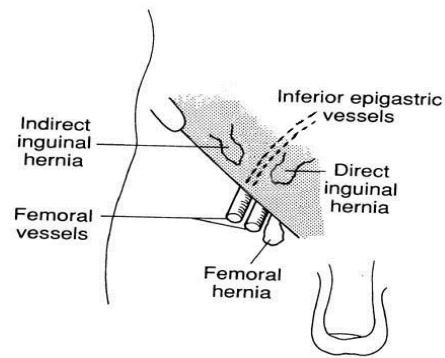
Traditionally it is taught that an inguinal hernia will lie above and medially to the pubic tubercle whereas a femoral hernia lies laterally and below. This is not strictly true, as the internal ring is always lateral to the femoral canal and a small indirect inguinal hernia will therefore be lateral to the pubic tubercle. A better test to differentiate the two might be to place the finger over the femoral canal for reducible hernias and then ask the patient to cough. When the patient coughs, a femoral hernia should remain reduced while an inguinal hernia will reappear as an obvious swelling.

Remember, inguinal hernias has impulse on coughing or bearing down. Femoral hernias are usually irreducible (due to the narrow femoral canal) and cough impulse rarely detectable.

Incarcerated hernia cannot be pushed back into the abdomen by applying manual pressure and hence are irreducible.

Strangulated hernia are also irreducible. They are tense and red and usually followed by symptoms and signs of bowel obstruction.

Discrimination between direct and indirect inguinal hernia by physical examination is not very accurate. In an indirect inguinal hernia, the protrusion passes through the deep inguinal ring and is located lateral to the inferior epigastric artery. Whilst traditional textbooks describe the anatomical differences between indirect (hernia through the inguinal canal) and direct hernias (through the posterior wall of the inguinal canal), this is of no clinical relevance as the management still remains the same. The type of inguinal hernia in adults is usually confirmed at the operation.



38. A 58 year old lady with a medical history of type 1 diabetes mellitus has a tender lump near the anal opening which has been increasing in size for the last 3 weeks. She complains of constipation and throbbing pain when she sits down. She has a temperature of 38.1°C. The mass is seen to be swollen, erythematous and tender at the edge of the anus. What is the SINGLE most appropriate management?

A. Incision, drainage and antibiotics

- B. Intravenous antibiotics only
- C. Rubber band ligation
- D. Sclerotherapy
- E. Glycerol suppositories

This is a case of anorectal abscess. Diabetes, immunocompromised patients or patients with crohn's disease are likely candidates for an anorectal abscess. Fever and pain are typical for an anorectal abscess. The perianal pain is sometimes worse when sitting and can be associated with constipation.

Management would include surgical drainage. Antibiotic use is necessary if there is a history of diabetes or immunosuppression.

39. A 39 year old man has a painful palpable mass for the past 6 weeks near his anus. On examination, the lump is warm, erythematous, and tender. He has a history of diabetes. What is the SINGLE most likely diagnosis?

- A. Anal fissure
- B. Perianal abscess**
- C. Perianal haematoma
- D. Anogenital warts
- E. External haemorrhoids

This is a very straightforward question. Although many of the options could be very well correct, the history of diabetes should point you towards an infective cause. Hence, perianal abscess as the answer.



40.	<p>2 hours after an appendectomy, a 33 year old man complains of feeling unwell, having abdominal pain. He has a pulse of 128 beats/minute, a blood pressure of 88/55 mmHg and a respiratory rate of 32 breaths/minute. What is the SINGLE most likely reason for his observations?</p> <p>A. Intra-abdominal bleed B. Anastomotic leak C. Sepsis D. Intestinal obstruction E. Pulmonary embolism</p> <p>The most likely answer here would be an intra-abdominal bleed. Given the time of 2 hours post-op, bleeding is the most likely reason for his observations deteriorating.</p> <p>It is also important to note that there is no anastomosis in an appendectomy hence anastomotic leak is clearly wrong. Bowel perforation (if given) would be a potential answer however the timing of 2 hours does not quite fit.</p>
41.	<p>A 32 year old man was involved in a road traffic accident and was operated for abdominal trauma where a splenectomy was performed. On the second day post-op, his abdomen becomes gradually distended and tender and he complains of epigastric fullness. He feels nauseous and vomited twice in the morning. His blood pressure has now dropped to 70/40 mmHg and he has a pulse rate of 140 beats/minute. A nasogastric tube was inserted and the patient was almost immediately relieved. What is the SINGLE most likely diagnosis?</p> <p>A. Acute gastric dilatation B. Primary haemorrhage C. Reactionary haemorrhage D. Secondary haemorrhage E. Subphrenic abscess</p> <p>Patients can develop acute gastric dilatation as a postoperative complication of splenectomy and abdominal surgery. This is due to disruption of blood supply to the stomach which predisposes to acute gastric dilatation. One of the causes of acute gastric dilatation is If the patient drinks too soon after an abdominal surgery when the stomach is still in ileus. The accumulation of fluid in the stomach may induce hypovolaemic shock. In addition, patients with acute gastric dilatation may proceed to have a gastric rupture. This will lead to the development of peritonitis.</p> <p>Signs and symptoms of acute gastric dilatation include a distended and tender abdomen, epigastric fullness, nausea, vomiting and heartburn.</p> <p>Insertion of a nasogastric tube would allow decompression of the stomach and immediately improve patients condition.</p> <p>Given that the nasogastric tube relieved his symptoms, it is unlikely that this is a bleed.</p> <p>The other options are less likely</p>



	<p>Primary haemorrhage → Occurs immediately after surgery or as a continuation of an intraoperative bleeding. This is usually due to an unsecured blood vessel.</p> <p>Reactionary haemorrhage → Occurs within the first 24 hours and it is usually due to venous bleeding and is commonly thought to be due to improved post-operative circulation and fluid volume, which results in rolling or slipping of ligature. It is important to remember that postoperatively, the blood pressure would rise due to refilling of the venous system and thus exposing unsecured vessels that bleed.</p> <p>Secondary haemorrhage → Develops 24 hours or more after the surgery. It occurs up to 10 days post-operatively. It is usually due to infection of an operative wound or raw surfaces causing clot disintegration and bleeding from exposed tissue.</p>
42.	<p>An 66 year old woman is found to be anaemic. As part of her exam, she had a barium enema which reveals a mass lesion in the right side of the large intestine. What is the SINGLE most likely diagnosis?</p> <p>A. Sigmoid volvulus B. Anal fissure C. Sigmoid carcinoma D. Diverticular disease E. Caecal carcinoma</p> <p>A mass in right side of the large intestine and anaemia makes cecal carcinoma the likely diagnosis from the given options.</p> <p>Usually the patient presents with unexplained pain in the right iliac fossa with or without general symptoms such as anaemia, malaise and weakness. However it is important to note that abdominal pain often develops late in the disease. Cancers arising on the right side of the large intestine (ascending colon and cecum) tend to be exophytic. For that reason, it very rarely causes obstruction of faeces, and presents with symptoms such as anaemia.</p>
43.	<p>A 35 year old diabetic man on insulin is booked in for an elective hernia operation. What is the SINGLE most appropriate management plan for his diabetes on the day of the surgery?</p> <p>A. Stop insulin and start metformin on the day of surgery B. Administer insulin and saline pre-operatively C. Administer Intravenous insulin, dextrose and saline pre-operatively D. Administer insulin as usual E. Stop insulin for the duration of the operation</p> <p>The patient needs to be on a sliding scale pre-operatively to maintain optimal glucose control.</p> <p>In the sliding-scale method, insulin dose is based on your blood glucose level. The higher your blood glucose, the higher the insulin dose is adjusted to.</p>



	<p>Every hospital has slightly different guidelines for a sliding scale. But the general key idea is to maintain a hourly monitoring of capillary blood glucose target between 4 - 9 mmol/L. This is done by administering insulin, dextrose and saline to keep the glucose levels between 4 - 9 mmol/L.</p>
44.	<p>A 29 year old woman presents with a single 2 cm by 2 cm lump in the breast. The lump is mobile and hard in consistency. On examination, the mass is painless and there is also a palpable lymph node in the axilla. An ultrasound was performed which shows a mass with hypoechoic, ill-defined, spiculated, and microlobulated margins. A mammogram shows ill-defined, spiculate borders. A fine needle aspiration cytology was performed which results came back as normal. What is the SINGLE most appropriate investigations to confirm the diagnosis?</p> <p>A. Repeat fine needle aspiration cytology B. Magnetic resonance imaging C. Punch biopsy D. Genetic testing and counselling E. Core biopsy</p> <p>Breast fine needle aspirations are not 100% accurate. The lump is definitely suspicious. The most appropriate investigation to confirm the diagnosis is core biopsy. A core biopsy uses a hollow needle to take one or more samples of breast tissue from the area of concern. Because tissue is taken rather than cells, it gives more detailed information compared to a fine needle aspiration.</p> <p>A fine needle aspiration (FNA) involves taking one or more samples of breast cells using a fine needle and syringe. The sample of fluid or cells is smeared on a glass slide and sent to a pathology laboratory to be examined. It is usually done under ultrasound guidance or occasionally mammogram guidance. Fine needle aspirations only take a small amount of cells and thus they cannot be used to definitely rule out cancer as sometimes the cells that are taken may have arisen from normal tissue.</p> <p>A punch biopsy may be done when there is a change to the skin of the breast or nipple. It involves taking a very small cylindrical piece of tissue from the changed area.</p>
45.	<p>A 43 year old diabetic, who takes regular sitagliptin, has a planned elective hernia repair surgery. What is the SINGLE most appropriate advice to give regarding the perioperative management of his diabetic medication?</p> <p>A. Start normal saline infusion and dextrose at time of admission B. Start subcutaneous insulin C. Omit sitagliptin 3 days prior to the procedure D. Continue medication with no change E. Omit sitagliptin on the day of the procedure</p> <p>Perioperative management of diabetes is often quite confusing. Below are guidelines that give you an idea of which medications need to be stopped and when they can be restarted. It is not an exhaustive list and different hospitals have different protocols for diabetic medications but the general concept is still there.</p>



The highlighted boxes represent frequently asked topics which you should memorize

Insulin type and frequency	Day prior to admission	Day of surgery	After Surgery
Long-acting insulin, taken once a day in the evening	Take as usual	See 'after surgery' box	Restart once eating and drinking
Long-acting insulin, taken once a day in the morning	Take as usual	Reduce usual dose by approximately 1/3 for each expected omitted meal	Restart once eating and drinking
Twice daily insulins eg mixed or intermediate acting	Take as usual	Half usual morning dose	Restart once eating and drinking
Three times a day (mealtime) insulin	Take as usual	Omit doses on meals that are to be missed	Restart once eating and drinking

SAMPLE



Types of non-insulin anti-diabetic medicines	Day prior to admission	Day of surgery	After Surgery	
Acarbose	Take as normal	Omit dose if missing meal	Restart once eating and drinking	
Meglitinide (e.g. gliclazide, glipizide)	Take as normal	Omit dose if missing meal	Restart once eating and drinking	
Short acting sulphonylureas (e.g. glibenclamide)	Take as normal	Omit dose if missing meal	Restart once eating and drinking	
Long acting sulphonylureas (e.g. glibenclamide)	Take as normal	Omit dose if missing meal	Restart once eating and drinking	
Metformin (including Glucophage SR)	Take as normal (unless surgery with contrast dye - needs to be stopped two days before surgery)	Take as normal (unless surgery with contrast dye - miss all doses)	Take as normal (unless surgery with contrast dye - restart two days after surgery)	
Pioglitazone	Take as normal	Take as normal	Restart once eating and drinking	
DPP IV inhibitor (e.g. sitagliptin, vildagliptin, saxagliptin)	Take as normal	Omit morning dose	Restart once eating and drinking	
Short-acting GLP-1 analogue (e.g. exenatide, liraglutide)	Take as normal	Omit morning dose	Restart once eating and drinking	
Long-acting GLP-1 analogue (e.g. exenatide)	Take as normal	Take as normal	Take as normal	



	<p>Blood glucose should be checked regularly before, during and after the operation. If at any point the blood glucose level is higher than 11 mmol/L, consider starting an insulin infusion intravenously.</p>
46.	<p>A 45 year old man is scheduled to have an elective anterior resection of the rectum. What is the SINGLE most appropriate antibiotic prophylaxis regimen?</p> <p>A. Oral antibiotics a week before surgery B. Oral antibiotic 2 days before surgery and continue for 5 days after surgery C. Intravenous antibiotics the night before surgery D. Intravenous antibiotics 3 days before surgery E. Intravenous antibiotics at the induction of anaesthesia</p> <p>Surgical antibiotic prophylaxis is defined as the use of antibiotics to prevent infections at the surgical site. It needs to be given at the correct time and for most parenteral antibiotics that would be at the time of induction of anaesthesia.</p>
47.	<p>A 48 year old man complains of rectal bleeding and loss of weight. He has a mass in left iliac fossa. What is the SINGLE most likely diagnosis?</p> <p>A. Caecal carcinoma B. Carcinoma of sigmoid colon C. Carcinoma of transverse colon D. Ulcerative colitis E. Volvulus</p> <p>The position of the mass in combination of the symptoms of change of bowel habit and weight loss can only be from a carcinoma of sigmoid colon.</p>
48.	<p>A 32 year old man has undergone an open appendectomy earlier today. In theatre, a gangrenous appendix was found. What is the SINGLE most appropriate pain relief to administer post operatively?</p> <p>A. Patient controlled analgesia with morphine B. Oral tramadol C. Oral morphine D. Rectal diclofenac E. Intramuscular morphine</p> <p>This is a case of an open surgery. Patient controlled analgesia with morphine would be the best to start off and this could be weaned off when the patient is in less pain.</p>



SAMPLE



HAEMATOLOGY

SAMPLE



1.	<p>A 67 year old man with history of weight loss complains of hoarseness of voice. Chest X-ray reveals opacity in the right upper mediastinum. He denies any history of difficulty breathing. What is the SINGLE most appropriate investigation?</p> <p>A. Laryngoscopy B. Bronchoscopy C. Lymph node biopsy D. Bronchoalveolar lavage E. Barium swallow</p> <p>Mediastinal masses are frequent and are sometimes discovered on a routine CXR in lymphoma.</p> <p>Tissue diagnosis is the best way to diagnose lymphoma. Lymph node excision biopsy is what is usually done.</p>
2.	<p>A 75 year old male presents with enlarged cervical nodes. He has several recurrent infections over the last year. His conjunctiva is pale and he feels weak. What is the SINGLE most likely cell type to be found on a blood smear of this patient?</p> <p>A. Granulocyte without blast cells B. Myofibroblasts C. Plasma cells D. Mature lymphocytes E. Sickling of cells</p> <p>The diagnosis here is Chronic lymphocytic leukaemia (CLL) which has mature lymphocytes on the blood film.</p> <p>Factors that support the diagnosis of CLL in this question:</p> <ul style="list-style-type: none">• His age (75 years old) - In the PLAB test, if you see an elderly patient (usually more than 65 years old) with symptoms of leukaemia, it is most likely CLL. However, read the whole question before you make a decision on the answer.• Cervical lymphadenopathy• Recurrent infections → dysfunctional WBC• Pale conjunctiva → Anaemia <p>On blood film, B cell lymphocytosis will be seen often with smudge cells. They are mature but functionally impaired lymphocytes as they escape apoptosis.</p> <p>Chronic lymphocytic leukaemia (CLL)</p> <p>CLL can often present as an asymptomatic elevation of white cells found on routine evaluation of patients during investigations for other health problems. These patients are exclusively older (majority over 50 years old).</p> <p>When patients do have signs and symptoms they are usually non-specific:</p>



	<ul style="list-style-type: none">• Fatigue• Lethargy• Enlargement of lymph nodes <p>When should you suspect CLL?</p> <p>When an older patient has marked elevation in white cell count with marked lymphocytic predominance. The marrow is often infiltrated with leukemic lymphocytes. "Smudge cells" are seen on smear.</p>
3.	<p>A 29 year old woman at 28 weeks gestation comes in for an antenatal visit. Her blood tests reveal:</p> <p>Hb: 11.0g/dL MCHC: normal range MHC: normal</p> <p>What is the SINGLE best explanation for these blood results?</p> <p>A. Iron deficiency anaemia B. Folate deficiency anaemia C. Anaemia of chronic disease D. Normal physiological phenomenon E. Autoimmune anaemia</p> <p>The British Committee for Standards in Haematology has defined anaemia in pregnancy as the following values</p> <p>Hb levels of:</p> <ul style="list-style-type: none">• < 11.0g/dl in the first trimester• < 10.5 g/dl in the second and third trimesters• < 10.0 g/dl in the postpartum period. <p>Normal physiological changes in pregnancy</p> <p>Haematological changes</p> <ul style="list-style-type: none">• Plasma volume increases over the course of pregnancy by about 50%. Dilutional anaemia is caused by the rise in plasma volume. Elevated erythropoietin levels increase the total red cell mass by the end of the second trimester but haemoglobin concentrations never reach pre-pregnancy levels.• Usually mean corpuscular volume (MCV) and mean corpuscular haemoglobin concentration (MCHC) are unaffected.• Serum iron falls during pregnancy whilst transferrin and total iron binding capacity rise. <p>Knowing the new British criteria for diagnosing anaemia in pregnancy is extremely important for the PLAB 1 exam as is knowing the normal physiological changes in pregnancy. Many</p>



	people get caught out with some of these physiological changes and class them as pathological whereas in fact, they are completely normal in pregnancy.
4.	<p>A 50 year old woman is investigated for anaemia. She has no past medical history of note. Clinical examination reveals massive splenomegaly associated with pale conjunctivae. A full blood count was requested and results show:</p> <p>Haemoglobin 105 g/L White cell count 62 x 10⁹/L Platelets 803 x 10⁹/L</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Chronic lymphocytic leukaemia B. Chronic myeloid leukaemia C. Myeloma D. Acute myeloid leukaemia E. Malaria</p> <p>The clincher here is the massive spleen. Although there are many causes of massive spleen, for the purpose of PLAB, massive spleen can only be caused by Chronic myeloid leukaemia (CML) or Malaria</p> <p>If you see a middle aged man/woman with a huge spleen → likely to be Chronic myeloid leukaemia (CML). Malaria would likely have a travel history of some sort.</p> <p>Mnemonic:CML → Crazy Massive Large Spleen</p> <p>The blood picture fits perfectly for CML in this question. Slight anaemia and high WBC. Raised platelets can also be seen in CML</p> <p>Chronic myeloid leukaemia (CML) CML is a clonal bone marrow stem cell disorder in which a proliferation of mature granulocytes (neutrophils, eosinophils and basophils) and their precursors is found.</p> <p>CML typically progresses through three stages:</p> <ul style="list-style-type: none">• <i>Chronic phase</i> <i>The immune system is competent and patients are asymptomatic for prolonged periods - (typically 4-5 years) More than 90% of patients are diagnosed in the initial chronic phase.</i>• Accelerated phase In about two thirds of patients, the chronic phase transforms into an accelerated phase characterised by a moderate increase in blast cells, increasing anaemia or thrombocytopenia.• Blast crisis or blastic phase After a variable amount of time (usually months) the accelerated phase progresses to acute blastic transformation. Features of blastic phase include bone marrow or



peripheral blasts $\geq 30\%$, severe constitutional symptoms due to tumour burden (weight loss, fever, night sweats, bone pain), infection and bleeding

Clinical Presentation

Usually presents at age 40 to 50 years old (middle-age)

85-90% of patients are diagnosed in the chronic phase and in recent years about 40% of patients have been diagnosed before any symptoms developed, with incidental abnormalities spotted on a blood test.

- Fatigue (due to anaemia)
- Weight loss
- Night sweats
- Abdominal discomfort → from massive enlargement of spleen (this is common)
- Splenomegaly → this is the most common physical finding, which may extend towards the right iliac fossa (Seen in $>75\%$)
- Hepatomegaly
- Enlarged lymph nodes (rare)
- Low grade fever
- Gout due to rapid cell turnover

Note: Enlarged lymph nodes are rare and infection are uncommon because these white cells retain the majority of their function

Investigations at presentation

- FBC:
 - Leukocytosis is common (often $>100 \times 10^9/L$)
 - Differential shows granulocytes at all stages of development (increased numbers of neutrophils, myelocytes, basophils, eosinophils)
 - Platelets may be elevated, decreased or normal levels
 - A mild-to-moderate, usually normochromic and normocytic, anaemia is common
- Peripheral blood smear - all stages of maturation seen
- Biochemistry - U&Es are usually normal at presentation, lactate dehydrogenase is usually raised, serum urate may be raised.
- Bone marrow aspiration and biopsy are essential to quantify the percentage of blasts and basophils, to assess the degree of fibrosis and to obtain material for cytogenetic-molecular analyses.
- Cytogenetics - the characteristic feature in CML is the Ph chromosome, found in about 90% of cases. (oxford says $> 80\%$). This can be found on cytogenetic analysis of blood or bone marrow.

Take home notes:

- *The main feature of the disease is an elevated white blood cell count consisting predominantly of neutrophils. Blasts are either absent or present in very small amounts.*



	<ul style="list-style-type: none">• The Philadelphia chromosome is present in more than 90% of patients with chronic myeloid leukaemia (CML).• In PLAB, look for the massive enlargement of spleen
5.	<p>A 51 year old man complains of headache and pruritus. He had a deep vein thrombosis recently. Recent blood report shows the following:</p> <p>Haemoglobin 192 g/L White cell count 15 x 10⁹/L Platelets 809 x 10⁹/L</p> <p>Erythropoietin was found to be low. What is the SINGLE most likely diagnosis?</p> <p>A. Myelofibrosis B. Polycythaemia rubra vera (PRV) C. Essential thrombocythemia D. Chronic myeloid leukaemia (CML) E. Chronic lymphocytic leukaemia (CLL)</p> <p>The signs and symptoms are consistent with polycythaemia rubra vera (PRV)</p> <p>About a third of patients with PRV present with symptoms due to thrombosis. This includes DVT like in this question.</p> <p>PCV is usually associated with a low serum level of the hormone erythropoietin (EPO).</p> <p>Polycythaemia rubra vera (PRV)</p> <p>Polycythaemia rubra vera (PRV) is the most common form of primary polycythaemia. It is a malignant proliferation of a clone derived from one pluripotent marrow stem cell.</p> <ul style="list-style-type: none">• There is excess proliferation of RBCs, WBCs, and platelets, leading to hyperviscosity and thrombosis• More commonly found in patients who are more than 60 years old• A mutation in JAK2 is present in >90% <p>Presentation</p> <ul style="list-style-type: none">• It may be discovered on routine blood count in a person with no related symptoms or there may be nonspecific complaints of lethargy and tiredness• About a third present with symptoms due to thrombosis. Features include stroke, myocardial infarction, deep vein thrombosis and pulmonary embolism• Headaches, dizziness, sweating, and tinnitus• Bleeding from gums or easy bruising is usually mild but gastrointestinal haemorrhage can be more severe. This is secondary to abnormal platelet function• Pruritus which is typically worse after a hot shower or bath



	<ul style="list-style-type: none">• Splenomegaly is present in about 75% of patients (oxford says 60%)• Hypertension is common• Erythema, warmth, pain, and even sometimes infarction of the distal extremities. Burning sensation in fingers and toes, are characteristic but not very common• Facial plethora• Gout from increased cell turnover <p>Note:</p> <ul style="list-style-type: none">• There is usually an abnormally low serum erythropoietin <p>Management</p> <ul style="list-style-type: none">• Venesection• Chemotherapy options include:<ul style="list-style-type: none">• Younger than 40 years of age: first-line is interferon• Older than 40 years of age: first-line is hydroxycarbamide (hydroxyurea)• Low dose aspirin 75mg OD → To reduce thrombotic events
6.	<p>A 14 year old child has recurrent throat infections. He feels tired and lethargic all the time. Blood results show:</p> <p>Hb 7.2g/dl WCC $6 \times 10^9/L$ Platelets $95 \times 10^9/L$.</p> <p>Blood film shows blast cells. What is the SINGLE most likely diagnosis?</p> <p>A. Acute lymphoblastic leukaemia (ALL) B. Acute myeloid leukaemia (AML) C. Chronic myeloid leukaemia (CML) D. Chronic lymphocytic leukaemia (CLL) E. Hodgkin's lymphoma</p> <p>Acute lymphoblastic leukaemia (ALL)</p> <p>Aetiology Most cases of acute leukaemia arise with no apparent cause. There are several well known associations with the development of acute leukaemia that are sometimes present. These include radiation exposure, chemotherapeutic agents, as well as some retroviruses.</p> <p>Clinical Presentation The most common presentation results from the effects of the leukaemic blast cells crowding out the normal marrow cells, resulting in symptoms of pancytopenia even if the total white blood cell count is normal.</p> <ul style="list-style-type: none">• Fatigue from anaemia is the most common presenting complaint.



- Bleeding, petechiae, purpura or ecchymoses (due to thrombocytopenia)
- Recurrent and severe infections (oral, throat, skin, perianal infections commonly). This is because of the underproduction or abnormal function of white blood cells.
- Left upper quadrant fullness and early satiety due to splenomegaly (10-20%)

Acute lymphocytic leukaemia (ALL) is more common in children, and acute myelogenous leukaemia (AML) is more common in adults, but they are indistinguishable clinically. This means you cannot determine the diagnosis only from the clinical presentation.

ALL is more often associated with infiltration of other organs, but AML can do it as well. Enlargement of the liver, spleen, and lymph nodes and bone pain are common at presentation.

Diagnosis

The FBC is the first clue to the diagnosis. Depression of all three cell lines is common at presentation.

FBC

- Anaemia is usual and Hb may be below 5 g/L
- The white cell count can be low, normal, or elevated
- Thrombocytopenia

Many other disorders can present as pancytopenia similar to leukaemia such as aplastic anaemia, infections involving the marrow, metastatic cancer involving the marrow, vitamin B12 deficiency, SLE, hypersplenism, and myelofibrosis. However, none of these will have leukaemic blasts circulating in the peripheral blood. Although pancytopenia can cause all of the above, in PLAB, when pancytopenia is in the options, it is usually leukaemia, or aplastic anaemia.

A bone marrow biopsy showing numerous blasts confirms the diagnosis of acute leukaemia.

It is very unlikely that the PLAB questions would ask you to differentiate the AML from ALL using specific test. However, if a child (young age) is given with signs and symptoms of pancytopenia, ALL would be the most likely as it is the commonest childhood leukaemia.

Note:

- ALL is the commonest childhood leukaemia. Peak age is 2–4 years old.
- The Philadelphia chromosome occurs in 15–30% (mostly adults) and is associated with a poor prognosis.



7.	<p>A 53 year old lady has been suffering from chronic rheumatoid arthritis and is on methotrexate. Blood results show:</p> <p>Haemoglobin 83 g/L Mean cell volume (MCV) 70 fL</p> <p>What is the SINGLE most likely cause?</p> <p>A. Haemorrhoids B. Anaemia of chronic disease C. Menorrhagia D. Folate deficiency E. B12 deficiency</p> <p>The patient has microcytic anaemia which can fit with the diagnosis of anaemia of chronic disease. In anaemia of chronic disease, red cells are often normochromic, normocytic, but may be hypochromic, microcytic (as frequently seen in rheumatoid arthritis and Crohn's disease)</p> <p>Folate and B12 deficiency are in the category of macrocytic anaemias.</p> <p>There should be no reason for menorrhagia. Besides, the patient is 53 years old. The average age of menopause in UK is 51.</p> <p>There is also no relation with haemorrhoids.</p>
8.	<p>A 17 year old girl has prolonged bleeding after a routine dental extraction. Her father and paternal grandmother have experience similar problems. What is the SINGLE most likely mode of inheritance?</p> <p>A. Autosomal co-dominant B. Autosomal dominant C. Autosomal recessive D. X-linked E. Mitochondrial gene defect</p> <p>Although type 3 Von Willebrand disease is actually autosomal recessive, majority of Von willebrand's disease is autosomal dominant.</p> <p>Von Willebrand disease</p> <p>The 3 most important points you need to know in Von Willebrand disease in PLAB is:</p> <ol style="list-style-type: none">1. It presents with mucosal bleeding → Epistaxis, menorrhagia (behaves like a platelet disorder)2. Autosomal dominant (type 3 is recessive)3. Role of Von Willebrand's factor is:<ol style="list-style-type: none">a. Promotes platelet aggregationb. Carrier molecule for factor VIII



Investigation

- Bleeding time → prolonged
- APTT → prolonged
- Factor VIII levels may be moderately reduced
- Defective platelet aggregation with ristocetin

Management

- Tranexamic acid for mild bleeding
- Desmopressin (DDAVP): raises levels of vWF by inducing release of vWF
- Factor VIII concentrate

Comparing the 3 important bleeding disorders in PLAB

Von Willebrand disease	Haemophilia	Disseminated intravascular coagulation (DIC)
Platelet type bleeding (mucosal bleeding)	Factor type bleeding (deep bleeding into muscles and joints)	Bleeding everywhere: <ul style="list-style-type: none">• Venepuncture sites• GI tract• Ear nose throat• Skin: Purpura
aPTT prolonged Bleeding time prolonged	aPTT is prolonged	aPTT prolonged Bleeding time prolonged PT prolonged

9. A 51 year old vegan presents with complaints of peripheral paresthesia, mild shortness of breath and fatigue. Examination reveals that she has angular stomatitis and a sore red tongue. What is the SINGLE most likely cell type to be seen on a blood film?

- A. Numerous blast cells
B. Oval macrocytic red cells
C. Spherocytes
D. Microcytic hypochromic red cells
E. Heinz bodies

Angular stomatitis is a known sign for iron deficiency anaemia however vitamin B12 deficiency is sometimes responsible for angular stomatitis, and commonly occurs together with folate deficiency

The appearance of the tongue in vitamin B12 deficiency is described as "beefy" or "fiery red and sore".



	<p>Peripheral paresthesia is also a known symptom of vitamin B12.</p> <p>Vitamin B12 deficiency has RBC changes which include oval macrocytosis</p>
10.	<p>A 51 year old man complains of lethargy tiredness and pruritus. The pruritus is worse after he takes a hot shower. He also says that he feels a burning sensation in his fingers and toes. Splenomegaly was found during an abdominal examination. His medical history is significant for gout. What is the SINGLE most likely diagnosis?</p> <p>A. Polycythaemia rubra vera (PRV) B. Myelofibrosis C. Rheumatoid arthritis D. Scleroderma E. Systemic lupus erythematosus</p> <p>The signs and symptoms are consistent with polycythaemia rubra vera (PRV)</p> <p>Gout can be seen in PRV. This is due to an increased cell turnover.</p> <p>Polycythaemia rubra vera (PRV)</p> <p>Polycythaemia rubra vera (PRV) is the most common form of primary polycythaemia. It is a malignant proliferation of a clone derived from one pluripotent marrow stem cell.</p> <ul style="list-style-type: none">• There is excess proliferation of RBCs, WBCs, and platelets, leading to hyperviscosity and thrombosis• More commonly found in patients who are more than 60 years old• A mutation in JAK2 is present in >90% <p>Presentation</p> <ul style="list-style-type: none">• It may be discovered on routine blood count in a person with no related symptoms or there may be nonspecific complaints of lethargy and tiredness• About a third present with symptoms due to thrombosis. Features include stroke, myocardial infarction, deep vein thrombosis and pulmonary embolism• Headaches, dizziness, sweating, and tinnitus• Bleeding from gums or easy bruising is usually mild but gastrointestinal haemorrhage can be more severe. This is secondary to abnormal platelet function• Pruritus which is typically worse after a hot shower or bath• Splenomegaly is present in about 75% of patients (oxford says 60%)• Hypertension is common• Erythema, warmth, pain, and even sometimes infarction of the distal extremities. Burning sensation in fingers and toes, are characteristic but not very common• Facial plethora• Gout from increased cell turnover <p>Note:</p> <ul style="list-style-type: none">• There is usually an abnormally low serum erythropoietin



	<p>Management</p> <ul style="list-style-type: none">• Venesection• Chemotherapy options include:<ul style="list-style-type: none">• Younger than 40 years of age: first-line is interferon• Older than 40 years of age: first-line is hydroxycarbamide (hydroxyurea)• Low dose aspirin 75mg OD → To reduce thrombotic events
11.	<p>A 63 year old man presents with extreme thirst that despite drinking fluids he still feels thirsty. He has been having a back ache for the last 4 weeks that is getting worse and feels tired all the time. His serum calcium was found to be elevated. A blood film was taken. What is the SINGLE most likely finding to be seen on a blood film?</p> <p>A. Basophilic stippling B. Howell Jolly bodies C. Heinz bodies D. Trophozoites E. Rouleaux formation</p> <p>The signs and symptoms along with the hypercalcaemia point towards multiple myeloma. Rouleaux formation can be seen on the blood film in multiple myeloma.</p> <p>Multiple Myeloma</p> <p>A clonal abnormality of plasma cells resulting in their overproduction replacing the bone marrow as well as the production of large quantities of functionless immunoglobulins.</p> <p>Clinical Presentation</p> <ul style="list-style-type: none">• Bone disease → Bone pain is the most common clinical manifestation. This is most commonly in the back and the ribs, secondary to pathologic fractures.• Recurrent bacterial infection• Renal failure• Anaemia → may present with weakness, fatigue, and pallor• Hypercalcaemia → may present with polyuria, polydipsia, and altered mental status <p>Rarely, symptoms of a hyperviscosity syndrome such as blurry vision, and confusion, may occur.</p> <p>Diagnosis</p> <ul style="list-style-type: none">• Although a normochromic, normocytic anaemia is the most common laboratory finding, this is not specific for myeloma.• A serum protein electrophoresis with a markedly elevated monoclonal immunoglobulin spike is present in almost all cases• Urine protein electrophoresis: looks for the presence of Bence Jones' protein.• Plain x-ray of the skeletal system and skull will reveal the punched out lytic lesion caused by the overproduction of osteoclast activating factor from the plasma cells.



	<ul style="list-style-type: none">• Hypercalcaemia from the destruction of bone. Note that the hypercalcaemia is associated with normal alkaline phosphatase.• Elevation in the BUN and creatinine from the damage to the kidney from the immunoglobulins• A bone marrow biopsy with abundance of plasma cells confirms a diagnosis of multiple myeloma• Rouleaux formation can be seen on blood film (rouleaux means a cylindrical packet of coins) <p>Management This is beyond what will be asked in PLAB part 1</p>
12.	<p>A 5 year old boy has swelling at the knee after falling on the ground with rashes on his buttocks. His blood tests show:</p> <p>Haemoglobin 119 g/L White cell count $8 \times 10^9/L$ Platelets $259 \times 10^9/L$ Prothrombin time 12 seconds Activated partial thromboplastin time 61 seconds</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Haemolytic uraemic syndrome B. Haemophilia C. Henoch-Schönlein purpura D. Osler weber rendu syndrome E. Von-Willebrand disease</p> <p>As a general rule, platelet deficiency causes petechial haemorrhages and ecchymoses (bruising) whilst clotting factor deficiency produces haematomas and haemarthroses. This question gives a mixed picture where there are descriptions of both platelet deficiency (petechial haemorrhages seen on his buttocks) and factor deficiency (bleeding/swelling at his knee). However, the prolonged aPTT supports the diagnosis of haemophilia thus that is the answer. We can only hope that in PLAB, these mixed picture questions are low in number for you exam.</p> <p>Haemophilia A and B</p> <ul style="list-style-type: none">• Are congenital bleeding disorders with low levels of factor VIII (haemophilia A, classical haemophilia) or IX (haemophilia B, Christmas disease).• Sex-linked inheritance.• Males are typically affected• Female carriers are rarely symptomatic <p>Clinical presentation</p> <ul style="list-style-type: none">• Haemophilia A and B are clinically indistinguishable• Symptoms depend on the factor level.



	<ul style="list-style-type: none">History of spontaneous bleeding into joints, especially the knees, ankles and elbows, without a history of significant trauma. Spontaneous haemarthrosis are virtually pathognomonicIntramuscular haemorrhage may also occur. Spontaneous bleeding into arms, legs, or any site. The bleeding may lead to nerve compression, or compartment syndrome <p>Investigations</p> <ul style="list-style-type: none">Prothrombin time, bleeding time, fibrinogen levels and von Willebrand factor are normalActivated partial thromboplastin time (APTT) is usually prolonged but can be normal in mild diseaseFactor VIII/XI assay to diagnose <p>Remember these test to distinguish haemophilia from Von Willebrand disease</p> <ul style="list-style-type: none"><i>Haemophilia</i><ul style="list-style-type: none"><i>Only aPTT is prolonged</i><i>Has factor type bleeding (deep bleeding into muscles and joints)</i><i>Von willebrand disease</i><ul style="list-style-type: none"><i>aPTT and bleeding time are prolonged</i><i>Has platelet type bleeding (mucosal bleeding)</i> <p>Haemophilia A-specific treatment</p> <ul style="list-style-type: none">Desmopressin raises factor VIII levels, and may be sufficient to treat Haemophilia type AMajor bleeds (eg haemarthrosis): May need treatment with recombinant factor VIIIDo not give IM injections when factor is low <p>Haemophilia B-specific treatment</p> <ul style="list-style-type: none">Recombinant factor IX is the treatment of choiceNote: Desmopressin has no value in treatment of haemophilia B <p>Avoid NSAIDs and IM injections! <i>Questions may arise with this topic. In PLAB, in whichever scenario, avoid NSAIDs and IM injection as the answer in Haemophilia. NSAIDs must not be employed for the fear of gastrointestinal haemorrhage. If needed, give opiates for pain relief and if given parenterally, pick intravenously (IV) or possibly subcutaneously (SC) but not intramuscularly (IM). IM injection will produce a large and painful haematoma.</i></p>
13.	<p>A 54 year old woman is diagnosed with deep vein thrombosis after taking a long haul flight. She is started on warfarin. What is the target INR for her?</p> <p>A. <1 B. 1 - 2 C. 2 - 3 D. 3 - 4 E. 2 – 5</p>



	<p>INR is derived from the PT ratio and is a standardized method of reporting which permits comparability between laboratories.</p> <p>The INR range of 2 to 3 is appropriate for:</p> <ul style="list-style-type: none">• Prophylaxis or treatment of venous thromboembolism• Reduction of the risk of systemic embolism for people with atrial fibrillation and valvular heart disease <p>For the purpose of PLAB, just remember that INR of 2 to 3 is the answer for majority of cases. The only cases where a higher INR is required, is in the cases of a mechanical heart valve replacement. Patients with metallic valves require lifelong anticoagulation with a target INR of 3 to 4.</p>
14.	<p>A 13 year old girl has has mucosal bleeding and petechial rashes. She has been feeling tired lately. She looks pale. A blood count shows:</p> <p>Haemoglobin 74 g/L White cell count $1.9 \times 10^9/L$ Neutrophils $0.1 \times 10^9/L$ Platelets $24 \times 10^9/L$</p> <p>Blood film morphology was unremarkable. Reticulocytes are absent. A bone marrow aspirate shows a gross reduction in all haemopoietic tissue that is replaced by fat spaces. What is the SINGLE most likely underlying diagnosis?</p> <p>A. Pernicious anaemia B. Chronic myeloid leukaemia C. Aplastic anaemia D. Acute myeloid leukaemia E. Acute lymphoblastic leukaemia</p> <p>She has a signs and symptoms of anaemia. The blood picture shows pancytopenia which rules out pernicious anaemia as an underlying cause.</p> <p>Normal morphology rules out the possibility of acute myeloid leukaemia, and acute lymphoblastic leukaemia.</p> <p>From the age alone we can exclude chronic myeloid leukaemia as it usually presents at age 40 to 50 years old (middle-age)</p> <p>A bone marrow aspirate that shows a gross reduction in all haemopoietic tissue that is replaced by fat spaces is seen classically in aplastic anaemia. Absent reticulocytes support the diagnosis.</p> <p>Aplastic anaemia Aplastic anaemia is a rare, potentially life-threatening failure of haemopoiesis characterised by pancytopenia and hypoplastic marrow (the marrow stops making cells).</p>



	<p>Causes Most cases are autoimmune, triggered by drugs (viruses, eg parvovirus, hepatitis) or irradiation.</p> <p>Presentation Aplastic anaemia can present abruptly over, or insidiously over, weeks to months.</p> <p>Clinical manifestations are proportional to the peripheral-blood cytopenias and include:</p> <ul style="list-style-type: none">• <u>Symptoms of anaemia</u> (pallor, headache, palpitations, dyspnoea, fatigue, or ankle oedema) Note: Anaemic symptoms are usually less severe due to the chronic onset• <u>Symptoms of thrombocytopenia</u> (skin or mucosal haemorrhage, visual disturbance due to retinal haemorrhage, petechial rashes)• <u>Infection</u> (a less common presentation) particularly upper and lower respiratory tracts, skin, mouth, and peri-anal• There is no lymphadenopathy or hepatosplenomegaly (in the absence of infection). <p>Diagnostic tests: Marrow examination is needed for the diagnosis</p> <p>Note: To define aplastic anaemia based on FBC and bone marrow findings, at least two of the following must be present:</p> <ul style="list-style-type: none">• Haemoglobin <10 g/dL• Platelet count $< 50 \times 10^9/L$• Neutrophil count $<1.5 \times 10^9/L$ <p>It is also important to note that the blood film morphology is unremarkable which differentiates it from some other types of leukaemias.</p>
15.	<p>A 51 year old male presents with malaise and tiredness. On physical exam, his spleen is noted to be approaching his right iliac fossa. No lymphadenopathy was noticed. What is the SINGLE most likely cell type to be seen on a blood smear?</p> <p>A. Helmet shaped cell B. Sickle cell C. Granulocyte without blast cells D. Blast cells E. Target red cells</p> <p>The clincher here is the massive spleen that approaches the right iliac fossa. Although there are many causes of massive spleen, for the purpose of PLAB, massive spleen can only be caused by chronic myeloid leukaemia (CML) or Malaria</p> <p>If you see a middle aged man/woman with a huge spleen → likely to be Chronic myeloid leukaemia (CML). Malaria would likely have a travel history of some sort.</p> <p><i>Mnemonic: CML → Crazy Massive Large Spleen</i></p>



Chronic myeloid leukaemia (CML)

CML is a clonal bone marrow stem cell disorder in which a proliferation of **mature granulocytes** (neutrophils, eosinophils and basophils) and their precursors is found.

CML typically progresses through three stages:

- *Chronic phase*
The immune system is competent and patients are asymptomatic for prolonged periods - (typically 4-5 years) More than 90% of patients are diagnosed in the initial chronic phase.
- Accelerated phase
In about two thirds of patients, the chronic phase transforms into an accelerated phase characterised by a moderate increase in blast cells, increasing anaemia or thrombocytopenia.
- Blast crisis or blastic phase
After a variable amount of time (usually months) the accelerated phase progresses to acute blastic transformation. Features of blastic phase include bone marrow or peripheral blasts $\geq 30\%$, severe constitutional symptoms due to tumour burden (weight loss, fever, night sweats, bone pain), infection and bleeding

Clinical Presentation

Usually presents at age 40 to 50 years old (middle-age)

85-90% of patients are diagnosed in the chronic phase and in recent years about 40% of patients have been diagnosed before any symptoms developed, with incidental abnormalities spotted on a blood test.

- Fatigue (due to anaemia)
- Weight loss
- Night sweats
- Abdominal discomfort → from massive enlargement of spleen (this is common)
- Splenomegaly → this is the most common physical finding, which may extend towards the right iliac fossa (Seen in $>75\%$)
- Hepatomegaly
- Enlarged lymph nodes (rare)
- Low grade fever
- Gout due to rapid cell turnover

Note: Enlarged lymph nodes are rare and infection are uncommon because these white cells retain the majority of their function

Investigations at presentation

- FBC:
 - Leukocytosis is common (often $>100 \times 10^9/L$)
 - Differential shows granulocytes at all stages of development (increased numbers of neutrophils, myelocytes, basophils, eosinophils)
 - Platelets may be elevated, decreased or normal levels



	<ul style="list-style-type: none">○ A mild-to-moderate, usually normochromic and normocytic, anaemia is common• Peripheral blood smear - all stages of maturation seen• Biochemistry - U&Es are usually normal at presentation, lactate dehydrogenase is usually raised, serum urate may be raised.• Bone marrow aspiration and biopsy are essential to quantify the percentage of blasts and basophils, to assess the degree of fibrosis and to obtain material for cytogenetic-molecular analyses.• Cytogenetics - the characteristic feature in CML is the Ph chromosome, found in about 90% of cases. (oxford says > 80%). This can be found on cytogenetic analysis of blood or bone marrow. <p>Take home notes:</p> <ul style="list-style-type: none">• <i>The main feature of the disease is an elevated white blood cell count consisting predominantly of neutrophils. Blasts are either absent or present in very small amounts.</i>• The Philadelphia chromosome is present in more than 90% of patients with chronic myeloid leukaemia (CML).• In PLAB, look for the massive enlargement of spleen
16.	<p>A 25 year old Greek man presents with dark red urine hours after eating fava beans. He is now very ill and has signs of shock. Spherocytes and RBC fragments are seen on blood film. What is the SINGLE most likely diagnosis?</p> <p>A. Hereditary spherocytosis B. Glucose-6-phosphate dehydrogenase (G6PD) deficiency C. Alpha thalassemia D. Beta thalassemia E. Hereditary sideroblastic anaemia</p> <p>Spherocytes are usually seen in hereditary spherocytosis and autoimmune haemolytic anaemias. However, they may be seen in G6PD deficiency as well in severe haemolysis. The history of consumption of fava beans followed by rapid deterioration points towards G6PD deficiency.</p> <p>Otherwise, in the exam, if you see spherocytes, it is almost always either hereditary spherocytosis or autoimmune haemolytic anaemias.</p> <p>Glucose-6-phosphate dehydrogenase (G6PD) deficiency</p> <p>Glucose-6-phosphate dehydrogenase (G6PD) deficiency is X-linked and clinically important cause of oxidant haemolysis. It affects all races but is most common in those of African, Asian or Mediterranean descent.</p> <p>Deficiency of the G6PD enzyme results in reduced glutathione making the red cells vulnerable to oxidative damage and thus liable to haemolysis.</p>



↓ G6PD enzyme → ↓ glutathione → ↑ red cell susceptibility to oxidative stress

- Being X-linked, the disease affects mainly men but in areas of high frequency it is not uncommon to find homozygous women. (*In the exam, it is usually always male patient*)
- Most individuals with the G6PD defect are asymptomatic and unaware of their status
- Haemolysis occurs after exposure to oxidants or infection.
- Acute episodes of haemolysis with fava beans (termed favism)

There are many drugs that can elicit haemolysis in patients with G6PD deficiency. One drug that you would definitely need to look out for in the exam is → antimalarials: primaquine

Presentation:

- Most are asymptomatic
- May be a history of neonatal jaundice, severe enough to require exchange transfusion
- May have history of drug-induced haemolysis
- Gallstones are common
- Pallor from anaemia
- During a crisis jaundice occurs
- Back or abdominal pain (usually occurs when >50% haemolysis occurs)
- Splenomegaly may occur

There are typically 4 ways the patient might present in PLAB. Below are the specifics:

Drug-induced haemolysis in G6PD deficiency

- Begins 1-3 days after ingestion of drug
- Anaemia most severe 7-10 days after ingestion
- Associated with low back and abdominal pain
- Urine becomes dark (black sometimes)
- Red cells develop Heinz body inclusions
- Haemolysis is typically self-limiting

Haemolysis due to infection and fever

- 1-2 days after onset of fever
- Mild anaemia develops
- Commonly seen in pneumonic illnesses

Favism

- Hours/days after ingestion of fava beans (broad beans)
- Urine becomes red or very dark
- Shock may develop and it may be fatal

Neonatal jaundice

- May develop kernicterus (possible permanent brain damage)

Laboratory investigation (Important for exam)

- In steady state (i.e. no haemolysis) the RBCs appear normal



	<ul style="list-style-type: none">• Heinz bodies is seen on blood film in drug-induced haemolysis. Bite cells are also seen. Bite cells are cells with Heinz bodies that pass through the spleen and have part of the membrane removed <p>Laboratory investigations (Less important for exam)</p> <ul style="list-style-type: none">• Spherocytes and RBC fragments on blood film is seen if there is severe haemolysis• Increased reticulocytes• Increased unconjugated bilirubin• decreased haptoglobins <p>Diagnosis G6PD enzyme activity - is the definitive test</p> <p>Diagnosis should not be done during the haemolytic episode but be done during the steady state which is around 6 weeks after the episode of haemolysis. The reason behind this is the diagnosis is difficult during haemolytic episode since reticulocytes have increased levels of enzyme and may get abnormal result.</p> <p>Management</p> <ul style="list-style-type: none">• Avoidance of precipitating drugs, and broad (fava) beans• Transfuse in severe haemolysis or symptomatic anaemia• IV fluids to maintain good urine output• In infants, exchange transfusion may be required• Splenectomy may be of value in severe recurrent haemolysis
17.	<p>A 63 year old man presents with back pain, polydipsia and polyuria which have been present for the last couple of weeks. He complains of being tired lately. His previous full blood count shows a normochromic, normocytic anaemia. What is the SINGLE most appropriate test that would lead to a diagnosis?</p> <p>A. Bone marrow biopsy B. Vitamin D levels C. Liver function test D. CT scan E. Renal biopsy</p> <p>The signs and symptoms together with the normochromic, normocytic anaemia are indicative of multiple myeloma. A bone marrow biopsy would show an increased amount of plasma cells.</p> <p>Multiple Myeloma</p> <p>A clonal abnormality of plasma cells resulting in their overproduction replacing the bone marrow as well as the production of large quantities of functionless immunoglobulins.</p> <p>Clinical Presentation</p> <ul style="list-style-type: none">• Bone disease → Bone pain is the most common clinical manifestation. This is most commonly in the back and the ribs, secondary to pathologic fractures.• Recurrent bacterial infection



	<ul style="list-style-type: none">• Renal failure• Anaemia → may present with weakness, fatigue, and pallor• Hypercalcaemia → may present with polyuria, polydipsia, and altered mental status <p>Rarely, symptoms of a hyperviscosity syndrome such as blurry vision, and confusion, may occur.</p> <p>Diagnosis</p> <ul style="list-style-type: none">• Although a normochromic, normocytic anaemia is the most common laboratory finding, this is not specific for myeloma.• A serum protein electrophoresis with a markedly elevated monoclonal immunoglobulin spike is present in almost all cases• Urine protein electrophoresis: looks for the presence of Bence Jones' protein.• Plain x-ray of the skeletal system and skull will reveal the punched out lytic lesion caused by the overproduction of osteoclast activating factor from the plasma cells.• Hypercalcaemia from the destruction of bone. Note that the hypercalcaemia is associated with normal alkaline phosphatase.• Elevation in the BUN and creatinine from the damage to the kidney from the immunoglobulins• A bone marrow biopsy with abundance of plasma cells confirms a diagnosis of multiple myeloma• Rouleaux formation can be seen on blood film (rouleaux means a cylindrical packet of coins) <p>Management This is beyond what will be asked in PLAB part 1</p>
18.	<p>A 36 year old female presents with a petechial rash and menorrhagia. Her physical examination is completely normal and she has no other complaints. A full blood count was done and reveals:</p> <p>Hb: 13.3g/dL WBC: 9 x 10⁹/L Platelets: 90 x 10⁹/L</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Polycythaemia rubra vera B. Thrombocytopaenia C. Thrombocytosis D. Chronic myeloid leukaemia E. Hyposplenism</p> <p>This woman has an isolated decrease in platelets with no other complaints (other than menorrhagia). The presence of petechiae is an additional clue to thrombocytopaenia.</p> <p>Idiopathic thrombocytopenic purpura in adults</p>



	<p>Unlike ITP in children, adult ITP does not normally follow an infection and usually has an insidious onset. It is more likely to follow a chronic course in affected adults than in children.</p> <p><u>Presentation:</u> Adults with ITP may demonstrate a range of symptoms from none at all through to severe haemorrhage For the purpose of PLAB 1, the presentation is likely to be either:</p> <ul style="list-style-type: none">• Bleeding• Purpura• Epistaxis• Menorrhagia <p><u>Laboratory diagnosis</u> Isolated thrombocytopenia; blood count otherwise normal</p> <p><u>Management:</u></p> <ol style="list-style-type: none">1. Prednisolone2. IV immunoglobulin3. Emergency platelet transfusion only in life threatening haemorrhage. (usually platelet less than $20 \times 10^9/L$)
19.	<p>A 26 year old man has recently returned from new york. He has noticed weight loss, and has been having night sweats that is usually drenching. He has a temperature of 37.6°C and cervical lymphadenopathy. An enlarged spleen was seen on abdominal examination. What is SINGLE most likely the diagnosis?</p> <p>A. Tuberculosis B. Lymphoma C. Bronchial carcinoma D. Bronchitis E. <i>plasma</i> Mycoplasma pneumonia</p> <p>The signs and symptoms are classical for lymphoma. In this question, you do not need to differentiate between Hodgkin's and non-Hodgkin's.</p> <p>The travel history is irrelevant and was probably put in to throw you off.</p>
20.	<p>A 50 year old man has dizziness after exercising. He also complains of itching after a hot shower and says that he feels burning around his fingers. Abdominal examination is significant for splenomegaly. What is the SINGLE most likely diagnosis?</p> <p>A. Scleroderma B. Lymphoma C. Polycythemia D. Scabies E. Eczema</p>



	<p>The signs and symptoms are consistent with polycythaemia.</p> <p>Polycythaemia rubra vera (PRV)</p> <p>Polycythaemia rubra vera (PRV) is the most common form of primary polycythaemia. It is a malignant proliferation of a clone derived from one pluripotent marrow stem cell.</p> <ul style="list-style-type: none">• There is excess proliferation of RBCs, WBCs, and platelets, leading to hyperviscosity and thrombosis• More commonly found in patients who are more than 60 years old• A mutation in JAK2 is present in >90% <p>Presentation</p> <ul style="list-style-type: none">• It may be discovered on routine blood count in a person with no related symptoms or there may be nonspecific complaints of lethargy and tiredness• About a third present with symptoms due to thrombosis. Features include stroke, myocardial infarction, deep vein thrombosis and pulmonary embolism• Headaches, dizziness, sweating, and tinnitus• Bleeding from gums or easy bruising is usually mild but gastrointestinal haemorrhage can be more severe. This is secondary to abnormal platelet function• Pruritus which is typically worse after a hot shower or bath• Splenomegaly is present in about 75% of patients (oxford says 60%)• Hypertension is common• Erythema, warmth, pain, and even sometimes infarction of the distal extremities. Burning sensation in fingers and toes, are characteristic but not very common• Facial plethora• Gout from increased cell turnover <p>Note:</p> <ul style="list-style-type: none">• There is usually an abnormally low serum erythropoietin <p>Management</p> <ul style="list-style-type: none">• Venesection• Chemotherapy options include:<ul style="list-style-type: none">• Younger than 40 years of age: first-line is interferon• Older than 40 years of age: first-line is hydroxycarbamide (hydroxyurea)• Low dose aspirin 75mg OD → To reduce thrombotic events
21.	<p>A 4 year old boy has a cough and arthritis followed by rash on legs which are non-blanching on glass test. He has no history of a fever. His blood tests show:</p> <p>Haemoglobin 120 g/L White cell count $6.3 \times 10^9/L$ Platelets $259 \times 10^9/L$ Prothrombin time 13 seconds</p>



Activated partial thromboplastin time 35 seconds

What is the SINGLE most likely diagnosis?

- A. Meningitis septicemia
- B. Haemophilia
- C. Henoch-Schönlein purpura**
- D. Idiopathic thrombocytopenic purpura
- E. Thrombotic thrombocytopenic purpura

The blood results are all normal. The rash in the legs that are non blanching and the arthritis are hints towards Henoch-Schönlein purpura.

The disease occurs mostly in the winter months. About 50-90% of patients have a preceding upper respiratory tract infection (URTI) which explains the cough in the given question.

The stem here gives a no history of fever. Generally, patients with Henoch-Schönlein purpura appear to be mildly ill, with low-grade fever. But having no fever does not exclude the diagnosis.

Henoch-Schönlein purpura (HSP)

Presentation:

- Purpura (non-blanching) over buttocks and extensor surfaces
- Arthralgia (especially in the knees and ankles)
- Abdominal pain

Diagnosis:

- Mainly a clinical diagnosis
- Look for elevated ESR, IgA
- Raised creatinine ; labs consistent with nephropathy

Treatment:

- Self-limiting; conservative management
- NSAIDs for arthralgic pain → beware of choosing this option if case stem has impaired renal involvement!
- Corticosteroids can improve associated arthralgia and the symptoms associated with gastrointestinal dysfunction



22.	<p>A 30 year old woman complains of tiredness, lethargy and constipation. On inspection, she has dry coarse skin, hair loss and cold peripheries. On examination, a diffuse and lobulated goitre can be palpated on her anterior neck. A full blood count and peripheral smear is done which shows a macrocytic anaemia. What is the SINGLE most likely diagnosis?</p> <p>A. Cushing's Syndrome B. Hyperthyroidism C. Crohn's disease D. Addison's disease E. Pernicious anaemia</p> <p>This is a multi-part question. Her symptoms are indicative of hypothyroidism. Her signs are indicative of Hashimoto's Thyroiditis (an autoimmune thyroid disorder). Since Hashimoto's is an autoimmune disease and her blood smear shows a macrocytic anaemia, a logical conclusion would be that she is suffering from pernicious anaemia (also an autoimmune disease).</p> <p>Some points to remember for the PLAB 1 exam:</p> <p>Growth patterns of goitres</p> <ul style="list-style-type: none">• Iodine deficiency (rare in the developed world): diffuse• Hashimoto's Thyroiditis: diffuse and lobulated• Pituitary disease: diffuse• Grave's Disease: diffuse• Thyroid cancer and benign thyroid growths: uninodular <p>If you have difficulty remembering this long list just remember: all goitres grow diffuse except Hashimoto's (diffuse AND lobulated) and benign/malignant thyroid growths (uninodular).</p> <p>Associations of hypothyroidism</p> <ul style="list-style-type: none">• Obstructive sleep apnoea• Carpal tunnel syndrome• Galactorrhoea/hyperprolactinaemia
23.	<p>A 21 year old man presents with mild jaundice. Haemoglobin 75 g/L Reticulocytes 7%</p> <p>There are spherocytes seen on the blood film. He has no past medical history of any significance. What is the SINGLE most appropriate investigation?</p> <p>A. G6PD enzyme assay B. Direct coombs test C. Indirect coombs test D. Bone marrow biopsy E. Sickle solubility test</p>



The likely diagnosis here is the warm antibody induced haemolysis type of autoimmune haemolytic anaemia. Most cases are idiopathic with no underlying pathology. The low haemoglobin and high reticulocytes fit the picture. Mild jaundice and spherocytes can also be seen.

Direct Coombs test is the investigation of choice.

Autoimmune haemolytic anaemia

This occurs when RBCs react with autoantibody with or without a complement which leads to premature destruction of RBCs by reticuloendothelial system.

Types of autoimmune haemolytic anaemia

- Warm antibody type:
 - Idiopathic
 - Secondary to other autoimmune diseases e.g. Systemic lupus erythematosus (SLE)
 - Secondary to lymphoproliferative diseases e.g. Lymphoma, Chronic lymphatic leukaemia (CLL)
- Cold antibody type:
 - Idiopathic
 - Mycoplasma pneumoniae
 - Infectious mononucleosis

Warm antibody induced haemolysis

- Most cases are idiopathic with no underlying pathology
- Affects predominantly individuals >50 years of age
- Clinical features
 - Highly variable symptoms, asymptomatic or severely anaemic
 - Mild jaundice
 - Splenomegaly
- Diagnosis
 - Anaemia
 - Spherocytes on peripheral blood film
 - Increased reticulocytes
 - Detect on direct Coombs test

Cold haemagglutinin disease (CHAD)

- Describes syndrome associated with acrocyanosis in cold weather due to RBC agglutinates in blood vessels of skin. Caused by RBC antibody that reacts most strongly at temperatures below 32°C.
- May be idiopathic or secondary to infection with Mycoplasma or EBV (infectious mononucleosis)
- Clinical features
 - Acrocyanosis (blue discoloration of extremities e.g. fingers, toes) in cold conditions



	<ul style="list-style-type: none">○ Splenomegaly• Diagnosis<ul style="list-style-type: none">○ Anaemia○ Increased reticulocytes○ Positive direct Coombs test
24.	<p>A 40 year old female, chronic heavy smoker has a haemoglobin of 189 g/L. What is the SINGLE most useful hormone level to test for to help establish a diagnosis?</p> <p>A. Aldosterone B. Cortisol C. Erythropoietin D. T4 E. TSH</p> <p>Since this patient is a chronic smoker, we can assume that the haemoglobin levels are increased due to hypoxia.</p> <p>Erythropoietin levels are important to establish the cause of the high haemoglobin level.</p> <p>Secondary polycythaemia is where an underlying condition causes more erythropoietin to be produced. This is a hormone produced by the kidneys that stimulates the bone marrow cells to produce red blood cells.</p> <p>Secondary polycythaemia can be due to hypoxia (e.g. high altitudes, chronic lung disease, cyanotic congenital heart disease, heavy smoking). These can cause an increase in erythropoietin, due to not enough oxygen reaching the body's tissues.</p>
25.	<p>A 6 year old boy is brought to the hospital by his mother with bleeding from his gums and nose. His mother complains that he has been having recurrent sore throats that come and go in last couple of months.. Pale conjunctivae is noticed on examination. What is the SINGLE most likely single cell type associated with his diagnosis?</p> <p>A. Clumped platelets B. Microcytes C. Granulocyte without blast cells D. Blast cells E. Mature lymphocytes</p> <p>Before looking at the cell types, think of the diagnosis. The most likely diagnosis here is Acute lymphoblastic leukaemia (ALL) as he young, suffering recurrent infections (due to abnormal WBC), and having pale conjunctiva (anaemia). The bleeding gums and nosebleeds tell you that he has thrombocytopenia.</p> <p>Acute lymphoblastic leukaemia (ALL) and Acute myeloid leukaemia (AML) both have numerous blast cells.</p>



Acute lymphoblastic leukaemia (ALL)

Aetiology

Most cases of acute leukaemia arise with no apparent cause. There are several well known associations with the development of acute leukaemia that are sometimes present. These include radiation exposure, chemotherapeutic agents, as well as some retroviruses.

Clinical Presentation

The most common presentation results from the effects of the leukaemic blast cells crowding out the normal marrow cells, resulting in symptoms of pancytopenia even if the total white blood cell count is normal.

- Fatigue from anaemia is the most common presenting complaint.
- Bleeding, petechiae, purpura or ecchymoses (due to thrombocytopenia)
- Recurrent and severe infections (oral, throat, skin, perianal infections commonly). This is because of the underproduction or abnormal function of white blood cells.
- Left upper quadrant fullness and early satiety due to splenomegaly (10-20%)

Acute lymphocytic leukaemia (ALL) is more common in children, and acute myelogenous leukaemia (AML) is more common in adults, but they are indistinguishable clinically. This means you cannot determine the diagnosis only from the clinical presentation.

ALL is more often associated with infiltration of other organs, but AML can do it as well. Enlargement of the liver, spleen, and lymph nodes and bone pain are common at presentation.

Diagnosis

The FBC is the first clue to the diagnosis. Depression of all three cell lines is common at presentation.

FBC

- Anaemia is usual and Hb may be below 5 g/L
- The white cell count can be low, normal, or elevated
- Thrombocytopenia

Many other disorders can present as pancytopenia similar to leukaemia such as aplastic anaemia, infections involving the marrow, metastatic cancer involving the marrow, vitamin B12 deficiency, SLE, hypersplenism, and myelofibrosis. However, none of these will have leukaemic blasts circulating in the peripheral blood. Although pancytopenia can cause all of the above, in PLAB, when pancytopenia is in the options, it is usually leukaemia, or aplastic anaemia.

A bone marrow biopsy showing numerous blasts confirms the diagnosis of acute leukaemia.



	<p>It is very unlikely that the PLAB questions would ask you to differentiate the AML from ALL using specific test. However, if a child (young age) is given with signs and symptoms of pancytopenia, ALL would be the most likely as it is the commonest childhood leukaemia.</p> <p>Note:</p> <ul style="list-style-type: none">• ALL is the commonest childhood leukaemia. Peak age is 2–4 years old.• The Philadelphia chromosome occurs in 15–30% (mostly adults) and is associated with a poor prognosis.
26.	<p>A 55 year old man complains of headache and visual disturbances. He has a history of hypertension. He also reports itching after a hot bath and burning sensation in his finger and toes. He is noted to have mass in the left upper quadrant. Blood report shows the following:</p> <p>Haemoglobin 202 g/L White cell count 19 x 10⁹/L Platelets 502 x 10⁹/L Erythropoietin is normal</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Myelofibrosis B. Polycythaemia rubra vera (PRV) C. Essential thrombocythemia D. Chronic myeloid leukaemia (CML) E. Chronic lymphocytic leukaemia (CLL)</p> <p>The signs and symptoms are consistent with polycythaemia rubra vera (PRV)</p> <p>Hypertension is found in 30% of patients with PRV. Splenomegaly is found in 75% of patients at the time of diagnosis.</p> <p>The mass in the left upper quadrant represents the spleen (splenomegaly)</p> <p>Burning sensation in fingers and toes, are characteristic.</p> <p>PCV is usually associated with a low serum level of the hormone erythropoietin (EPO). However, everything else in this question points towards PRV.</p> <p>Polycythaemia rubra vera (PRV)</p> <p>Polycythaemia rubra vera (PRV) is the most common form of primary polycythaemia. It is a malignant proliferation of a clone derived from one pluripotent marrow stem cell.</p> <ul style="list-style-type: none">• There is excess proliferation of RBCs, WBCs, and platelets, leading to hyperviscosity and thrombosis• More commonly found in patients who are more than 60 years old• A mutation in JAK2 is present in >90%



	<p>Presentation</p> <ul style="list-style-type: none">• It may be discovered on routine blood count in a person with no related symptoms or there may be nonspecific complaints of lethargy and tiredness• About a third present with symptoms due to thrombosis. Features include stroke, myocardial infarction, deep vein thrombosis and pulmonary embolism• Headaches, dizziness, sweating, and tinnitus• Bleeding from gums or easy bruising is usually mild but gastrointestinal haemorrhage can be more severe. This is secondary to abnormal platelet function• Pruritus which is typically worse after a hot shower or bath• Splenomegaly is present in about 75% of patients (oxford says 60%)• Hypertension is common• Erythema, warmth, pain, and even sometimes infarction of the distal extremities. Burning sensation in fingers and toes, are characteristic but not very common• Facial plethora• Gout from increased cell turnover <p>Note:</p> <ul style="list-style-type: none">• There is usually an abnormally low serum erythropoietin <p>Management</p> <ul style="list-style-type: none">• Venesection• Chemotherapy options include:<ul style="list-style-type: none">• Younger than 40 years of age: first-line is interferon• Older than 40 years of age: first-line is hydroxycarbamide (hydroxyurea)• Low dose aspirin 75mg OD → To reduce thrombotic events
27.	<p>A 42 year old woman with septicaemia suddenly develops purpura all over her legs and arms. Her blood tests show:</p> <p>Haemoglobin 118 g/L White cell count $15.8 \times 10^9/L$ Platelets $28 \times 10^9/L$</p> <p>Prothrombin time, and activated partial thromboplastin time are prolonged. D-dimers were elevated. What is the SINGLE most likely diagnosis?</p> <p>A. Pulmonary embolism B. Disseminated intravascular coagulation C. Deep vein thrombosis D. Factor V Leiden mutation E. Warfarin interaction</p> <p>Disseminated intravascular coagulation (DIC)</p> <p>Presentation</p> <ul style="list-style-type: none">• Ecchymoses or spontaneous bleeding at venepuncture sites, and the site of trauma



	<ul style="list-style-type: none">• Bleeding from ears, nose and throat, gastrointestinal tract• Petechiae, purpura <p>Diagnosis</p> <p>No single laboratory test that can establish or rule out the diagnosis of DIC, therefore assess the whole clinical picture, taking into account the clinical condition of the patient, and all available laboratory results.</p> <ul style="list-style-type: none">• Thrombocytopenia (in up to 98% of cases) → around 50% of them would have a platelets count less than $50 \times 10^9/L$• Fibrin degradation products (inc. D-dimer) is elevated• Prothrombin time (PT) is elevated• Activated partial thromboplastin time (aPTT) is elevated• Fibrinogen level low <p><i>Remember, everything is elevated except platelets and fibrinogen.</i></p> <p>Treatment</p> <ul style="list-style-type: none">• Treat the underlying condition• Transfusion of platelets or plasma (components) for patients with severe bleeds• In bleeding patients with DIC and prolonged PT and aPTT, administer fresh frozen plasma (FFP)
28.	<p>A 7 year old boy has recurrent episodes of spontaneous bleeding into his knee and elbow joints. Mild joint deformity us noted. His father has a similar illness. Factor VIII/XI assay results show a decrease in factor VIII. What is the SINGLE most appropriate management?</p> <p>A. Desmopressin B. Recombinant factor IX C. Heparin D. Infusion of platelet concentrates E. Vitamin K</p> <p>Factor VIII deficiency is evidence of haemophilia A. Desmopressin is one of the treatment choices.</p> <p>Haemophilia A and B</p> <ul style="list-style-type: none">• Are congenital bleeding disorders with low levels of factor VIII (haemophilia A, classical haemophilia) or IX (haemophilia B, Christmas disease).• Sex-linked inheritance.• Males are typically affected• Female carriers are rarely symptomatic <p>Clinical presentation</p> <ul style="list-style-type: none">• Haemophilia A and B are clinically indistinguishable• Symptoms depend on the factor level.



- History of spontaneous bleeding into joints, especially the knees, ankles and elbows, without a history of significant trauma. Spontaneous haemarthrosis are virtually pathognomonic
- Intramuscular haemorrhage may also occur. Spontaneous bleeding into arms, legs, or any site. The bleeding may lead to nerve compression, or compartment syndrome

Investigations

- Prothrombin time, bleeding time, fibrinogen levels and von Willebrand factor are normal
- Activated partial thromboplastin time (APTT) is usually prolonged but can be normal in mild disease
- Factor VIII/XI assay to diagnose

Remember these test to distinguish haemophilia from Von Willebrand disease

- *Haemophilia*
 - *Only aPTT is prolonged*
 - *Has factor type bleeding (deep bleeding into muscles and joints)*
- *Von willebrand disease*
 - *aPTT and bleeding time are prolonged*
 - *Has platelet type bleeding (mucosal bleeding)*

Haemophilia A-specific treatment

- Desmopressin raises factor VIII levels, and may be sufficient to treat Haemophilia type A
- Major bleeds (eg haemarthrosis): May need treatment with recombinant factor VIII
- Do not give IM injections when factor is low

Haemophilia B-specific treatment

- Recombinant factor IX is the treatment of choice
- Note: Desmopressin has no value in treatment of haemophilia B

Avoid NSAIDS and IM injections!

Questions may arise with this topic. In PLAB, in whichever scenario, avoid NSAIDS and IM injection as the answer in Haemophilia. NSAIDs must not be employed for the fear of gastrointestinal haemorrhage. If needed, give opiates for pain relief and if given parenterally, pick intravenously (IV) or possibly subcutaneously (SC) but not intramuscularly (IM). IM injection will produce a large and painful haematoma.



29. A 22 year old man is admitted to the hospital with lethargy. His medical history includes hereditary spherocytosis. His blood tests show:

Haemoglobin 51 g/L
Reticulocytes 0.4%

What is the SINGLE most likely cause of his low haemoglobin and low reticulocytes?

- A. Parvovirus B19 infection
- B. Autoimmune haemolytic anaemia
- C. Splenic sequestration crisis
- D. Haemolytic transfusion reactions
- E. Recent antibiotic treatment

Parvovirus B19 infection can cause an aplastic crisis in patients with hereditary spherocytosis. This can be life-threatening and often requires blood transfusion.

Splenic sequestration crisis is a wrong answer. A patient with a sequestration crisis is also severely anaemic, but the reticulocyte count will be high, in contrast to the aplastic crisis where the reticulocyte count is low or zero. Splenic sequestration crisis is also usually seen in sickle cell.

Hereditary Spherocytosis

Hereditary Spherocytosis is the most common inherited RBC membrane defect characterized by variable degrees of haemolysis, spherocytic RBCs with increased osmotic fragility.

Approximately 75% of cases display an autosomal dominant pattern of inheritance; the rest are recessive forms and de novo mutations.

Clinical features

- Patients may present at any age with haemolytic anaemia, jaundice (either from haemolysis or gallstones) and splenomegaly
- 20-30% of patients have mild disease with an increased red cell turnover compensated with adequate replacement. They are neither symptomatic nor anaemic, but may have mild splenomegaly, slight reticulocytosis and minimal spherocytes visible.
- 60-70% of patients have moderate disease and half of these present in childhood with anaemia.
- Neonates with severe hereditary disease do not always present at birth with anaemia, but haemoglobin may fall dramatically over the first few weeks of life and may be severe enough to require exchange transfusion.
- Occasional aplastic crises occur, e.g. with parvovirus B19 infection.

Diagnosis



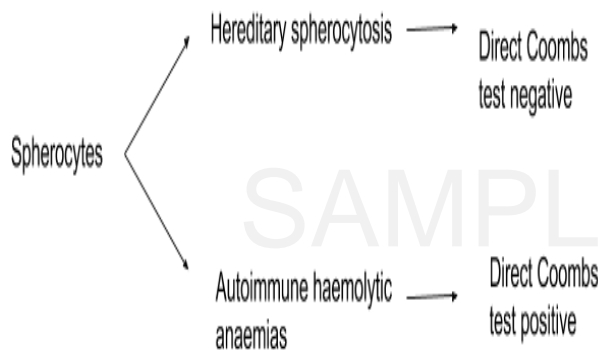
(These are the 3 most important test that you need to know in the exam for Hereditary Spherocytosis)

- Blood film shows spherocytes and increased reticulocytes
- MCHC would be elevated
- Osmotic fragility test → confirms presence of spherocytes but does not permit hereditary spherocytosis to be distinguished from other spherocytic haemolytic disorders such as autoimmune haemolytic anaemia. This is not reliable until six months of age.

Some authors mention that osmotic fragility test is unreliable and is no longer recommended. However, it is still considered the gold standard despite missing up to 20% of cases. In the PLAB exam, osmotic fragility test may be given as a choice for a diagnostic test for Hereditary Spherocytosis. Pick it if it is.

Note:

Spherocytosis almost always refers to hereditary spherocytosis but note that spherocytes are found in hereditary spherocytosis and also autoimmune haemolytic anaemias. The test to distinguish the two would be a direct Coombs test. Hereditary spherocytosis has a negative direct Coombs test but autoimmune haemolytic anaemias have a positive direct Coombs test



Management

Steroid therapy

- effective in augmenting haemoglobin levels during haemolytic crises in patients with moderate disease

Folate supplementation

Splenectomy

- eliminates anaemia and hyperbilirubinaemia and lowers the high reticulocyte number to nearly normal levels
- Splenectomy is curative in most patients but increased recognition of the long-term risks of splenectomy has led to re-evaluation of the role of splenectomy.

Mild cases do not usually require folate supplements or splenectomy



	<p>Complications</p> <ul style="list-style-type: none">• Rapid haemolysis can be triggered by viral infections and produce jaundice, anaemia and occasionally abdominal pain and tender splenomegaly. Supportive treatment is usually all that is needed.• Aplastic crises (aplastic anaemia). They are most commonly caused by infection with parvovirus B19 and usually last 10-14 days. This can be life-threatening. <p><i>When you see parvovirus B19 in the exam, immediately think of sickle cell anaemia or hereditary spherocytosis</i></p> <p>Parvovirus and anaemia</p> <p>Although most patients have a decrease of erythropoiesis (production of red blood cells) during parvovirus infection, it is most dangerous in patients with sickle cell anaemia or hereditary spherocytosis, as they are heavily dependent on erythropoiesis due to the reduced lifespan of the red cells.</p>
30.	<p>A 33 year old man complains of lethargy tiredness and pruritus. A diagnosis of polycythaemia vera was made. What is the SINGLE most appropriate management?</p> <p>A. Phlebotomy B. Splenectomy C. Indomethacin D. Heparin E. Warfarin</p> <p>VENESSECTION is the most appropriate.</p> <p>Splenectomy is something to consider in the management of PCV. But it is usually down the line when there is painful splenomegaly or there are repeated episodes of splenic infarction.</p> <p>Polycythaemia rubra vera (PRV)</p> <p>Polycythaemia rubra vera (PRV) is the most common form of primary polycythaemia. It is a malignant proliferation of a clone derived from one pluripotent marrow stem cell.</p> <ul style="list-style-type: none">• There is excess proliferation of RBCs, WBCs, and platelets, leading to hyperviscosity and thrombosis• More commonly found in patients who are more than 60 years old• A mutation in JAK2 is present in >90% <p>Presentation</p> <ul style="list-style-type: none">• It may be discovered on routine blood count in a person with no related symptoms or there may be nonspecific complaints of lethargy and tiredness• About a third present with symptoms due to thrombosis. Features include stroke, myocardial infarction, deep vein thrombosis and pulmonary embolism



	<ul style="list-style-type: none">• Headaches, dizziness, sweating, and tinnitus• Bleeding from gums or easy bruising is usually mild but gastrointestinal haemorrhage can be more severe. This is secondary to abnormal platelet function• Pruritus which is typically worse after a hot shower or bath• Splenomegaly is present in about 75% of patients (oxford says 60%)• Hypertension is common• Erythema, warmth, pain, and even sometimes infarction of the distal extremities. Burning sensation in fingers and toes, are characteristic but not very common• Facial plethora• Gout from increased cell turnover <p>Note:</p> <ul style="list-style-type: none">• There is usually an abnormally low serum erythropoietin <p>Management</p> <ul style="list-style-type: none">• Venesection• Chemotherapy options include:<ul style="list-style-type: none">• Younger than 40 years of age: first-line is interferon• Older than 40 years of age: first-line is hydroxycarbamide (hydroxyurea)• Low dose aspirin 75mg OD → To reduce thrombotic events
31.	<p>A 75 year old man presents with back pain and lethargy. Investigations were carried out. A bone marrow biopsy reports as having abundance of plasma cells. What is the SINGLE most likely diagnosis?</p> <p>A. Multiple myeloma B. Ankylosing spondylitis C. Amyloidosis D. Leukaemia E. Myelofibrosis</p> <p>A bone marrow biopsy with abundance of plasma cells is diagnostic for multiple myeloma.</p> <p>Multiple Myeloma</p> <p>A clonal abnormality of plasma cells resulting in their overproduction replacing the bone marrow as well as the production of large quantities of functionless immunoglobulins.</p> <p>Clinical Presentation</p> <ul style="list-style-type: none">• Bone disease → Bone pain is the most common clinical manifestation. This is most commonly in the back and the ribs, secondary to pathologic fractures.• Recurrent bacterial infection• Renal failure• Anaemia → may present with weakness, fatigue, and pallor• Hypercalcaemia → may present with polyuria, polydipsia, and altered mental status



	<p>Rarely, symptoms of a hyperviscosity syndrome such as blurry vision, and confusion, may occur.</p> <p>Diagnosis</p> <ul style="list-style-type: none">• Although a normochromic, normocytic anaemia is the most common laboratory finding, this is not specific for myeloma.• A serum protein electrophoresis with a markedly elevated monoclonal immunoglobulin spike is present in almost all cases• Urine protein electrophoresis: looks for the presence of Bence Jones' protein.• Plain x-ray of the skeletal system and skull will reveal the punched out lytic lesion caused by the overproduction of osteoclast activating factor from the plasma cells.• Hypercalcaemia from the destruction of bone. Note that the hypercalcaemia is associated with normal alkaline phosphatase.• Elevation in the BUN and creatinine from the damage to the kidney from the immunoglobulins• A bone marrow biopsy with abundance of plasma cells confirms a diagnosis of multiple myeloma• Rouleaux formation can be seen on blood film (rouleaux means a cylindrical packet of coins) <p>Management</p> <p>This is beyond what will be asked in PLAB part 1</p>
32.	<p>A 22 year old Greek man presents with rapid symptoms of anaemia and jaundice following treatment of malaria. He is noted to have Heinz bodies on a blood film. What is the SINGLE most likely diagnosis?</p> <p>A. Glucose-6-phosphate dehydrogenase (G6PD) deficiency</p> <p>B. Anaemia of chronic disease</p> <p>C. Pernicious anaemia</p> <p>D. Thalassaemia trait</p> <p>E. Hereditary sideroblastic anaemia</p> <p>Heinz bodies are pathognomonic for G6PD deficiency. In PLAB, if you see a question that has Heinz bodies on a blood film, you can almost be certain that this is G6PD deficiency.</p> <p>Haemolysis in this case was elicited by treatment of malaria. Usually primaquine is the culprit.</p> <p>Glucose-6-phosphate dehydrogenase (G6PD) deficiency</p> <p>Glucose-6-phosphate dehydrogenase (G6PD) deficiency is X-linked and clinically important cause of oxidant haemolysis. It affects all races but is most common in those of African, Asian or Mediterranean descent.</p> <p>Deficiency of the G6PD enzyme results in reduced glutathione making the red cells vulnerable to oxidative damage and thus liable to haemolysis.</p>



↓ G6PD enzyme → ↓ glutathione → ↑ red cell susceptibility to oxidative stress

- Being X-linked, the disease affects mainly men but in areas of high frequency it is not uncommon to find homozygous women. (*In the exam, it is usually always male patient*)
- Most individuals with the G6PD defect are asymptomatic and unaware of their status
- Haemolysis occurs after exposure to oxidants or infection.
- Acute episodes of haemolysis with fava beans (termed favism)

There are many drugs that can elicit haemolysis in patients with G6PD deficiency. One drug that you would definitely need to look out for in the exam is → antimalarials: primaquine

Presentation:

- Most are asymptomatic
- May be a history of neonatal jaundice, severe enough to require exchange transfusion
- May have history of drug-induced haemolysis
- Gallstones are common
- Pallor from anaemia
- During a crisis jaundice occurs
- Back or abdominal pain (usually occurs when >50% haemolysis occurs)
- Splenomegaly may occur

There are typically 4 ways the patient might present in PLAB. Below are the specifics:

Drug-induced haemolysis in G6PD deficiency

- Begins 1-3 days after ingestion of drug
- Anaemia most severe 7-10 days after ingestion
- Associated with low back and abdominal pain
- Urine becomes dark (black sometimes)
- Red cells develop Heinz body inclusions
- Haemolysis is typically self-limiting

Haemolysis due to infection and fever

- 1-2 days after onset of fever
- Mild anaemia develops
- Commonly seen in pneumonic illnesses

Favism

- Hours/days after ingestion of fava beans (broad beans)
- Urine becomes red or very dark
- Shock may develop and it may be fatal

Neonatal jaundice

- May develop kernicterus (possible permanent brain damage)

Laboratory investigation (Important for exam)



	<ul style="list-style-type: none">• In steady state (i.e. no haemolysis) the RBCs appear normal• Heinz bodies is seen on blood film in drug-induced haemolysis. Bite cells are also seen. Bite cells are cells with Heinz bodies that pass through the spleen and have part of the membrane removed <p>Laboratory investigations (Less important for exam)</p> <ul style="list-style-type: none">• Spherocytes and RBC fragments on blood film is seen if there is severe haemolysis• Increased reticulocytes• Increased unconjugated bilirubin• decreased haptoglobins <p>Diagnosis G6PD enzyme activity - is the definitive test</p> <p>Diagnosis should not be done during the haemolytic episode but be done during the steady state which is around 6 weeks after the episode of haemolysis. The reason behind this is the diagnosis is difficult during haemolytic episode since reticulocytes have increased levels of enzyme and may get abnormal result.</p> <p>Management</p> <ul style="list-style-type: none">• Avoidance of precipitating drugs, and broad (fava) beans• Transfuse in severe haemolysis or symptomatic anaemia• IV fluids to maintain good urine output• In infants, exchange transfusion may be required• Splenectomy may be of value in severe recurrent haemolysis
33.	<p>A 35 year old man has fatigue, night sweats and a mild fever for the last month. Examination reveals painless cervical lymphadenopathy. Splenomegaly is noted on abdominal examination. He has significant weight loss. What is the SINGLE most likely diagnosis?</p> <p>A. Non-Hodgkin lymphoma B. Polycythemia C. Iron deficiency anaemia D. Toxoplasmosis E. Cytomegalovirus infection</p> <p>There are two major points mentioned here: cervical lymphadenopathy and splenomegaly.</p> <p>This combination makes Non-Hodgkin lymphoma as the most likely cause</p> <p>Toxoplasmosis although uncommon, may have cervical lymphadenopathy and splenomegaly as well. But weight loss is not seen in toxoplasmosis hence non-hodgkin's lymphoma remains the top choice.</p> <p>Non-Hodgkin lymphoma</p> <p>This includes all lymphomas without Reed-Sternberg cells</p>



	<p>Most are derived from B-cell lines; diffuse large B-cell lymphoma (DLBCL) is commonest.</p> <p>Common Signs and Symptoms</p> <ul style="list-style-type: none">• Painless, slowly progressive peripheral lymphadenopathy is the most common clinical presentation• Primary extranodal involvement and systemic symptoms (fatigue, weakness, fever, night sweats, weight loss) are not common at presentation but are common in patients with advanced or end-stage disease. Note: fever, night sweats, weight loss are less common than in Hodgkin's lymphoma, and indicates disseminated disease• Bone marrow is frequently involved and may be associated with pancytopenia - anaemia, infection, bleeding (platelets).• Splenomegaly• Hepatomegaly
34.	<p>A 26 year old Greek man has recently recovered from a haemolytic episode 6 weeks ago. The haemolytic episode occurred a day after he ate a traditional Greek dish. Glucose-6-phosphate dehydrogenase deficiency is suspected. What is the SINGLE most definitive diagnostic test?</p> <p>A. Osmotic fragility test B. G6PD enzyme assay C. Heinz bodies seen on blood film D. Bite cells seen on blood film E. Decreased haptoglobins and increased reticulocytes</p> <p>G6PD enzyme activity is the definitive test</p> <p>Osmotic fragility test is to diagnose Hereditary spherocytosis. Heinz bodies and bite cells seen on blood film are important investigations that point towards G6PD but are not the definitive diagnostic test.</p> <p>Glucose-6-phosphate dehydrogenase (G6PD) deficiency</p> <p>Glucose-6-phosphate dehydrogenase (G6PD) deficiency is X-linked and clinically important cause of oxidant haemolysis. It affects all races but is most common in those of African, Asian or Mediterranean descent.</p> <p>Deficiency of the G6PD enzyme results in reduced glutathione making the red cells vulnerable to oxidative damage and thus liable to haemolysis.</p> <p>↓ G6PD enzyme → ↓ glutathione → ↑ red cell susceptibility to oxidative stress</p> <ul style="list-style-type: none">• Being X-linked, the disease affects mainly men but in areas of high frequency it is not uncommon to find homozygous women. <i>(In the exam, it is usually always male patient)</i>• Most individuals with the G6PD defect are asymptomatic and unaware of their status• Haemolysis occurs after exposure to oxidants or infection.



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Laboratory investigations (Less important for exam)

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- Increased reticulocytes



	<ul style="list-style-type: none">• Increased unconjugated bilirubin• decreased haptoglobins <p>Diagnosis G6PD enzyme activity - is the definitive test</p> <p>Diagnosis should not be done during the haemolytic episode but be done during the steady state which is around 6 weeks after the episode of haemolysis. The reason behind this is the diagnosis is difficult during haemolytic episode since reticulocytes have increased levels of enzyme and may get abnormal result.</p> <p>Management</p> <ul style="list-style-type: none">• Avoidance of precipitating drugs, and broad (fava) beans• Transfuse in severe haemolysis or symptomatic anaemia• IV fluids to maintain good urine output• In infants, exchange transfusion may be required• Splenectomy may be of value in severe recurrent haemolysis
35.	<p>A 29 year old man has back pain and abdominal pain following treatment of malaria. His urine has become dark and his eyes have a yellowish tinge. He has had gallstones in the past. His past medical history includes jaundice when he was a neonate. What is the SINGLE most likely diagnosis?</p> <p>A. Glucose-6-phosphate dehydrogenase (G6PD) deficiency B. Allergy to antimalaria medication C. Steven-Johnson syndrome D. Peptic ulcer disease E. Beta thalassemia</p> <p>Haemolysis in G6PD deficiency patients can be elicited by treatment of malaria. Back pain and abdominal pain can be seen in severe haemolysis occurring in G6PD deficiency.</p> <p>History of gallstones and neonatal jaundice support the diagnosis of G6PD deficiency.</p> <p>Glucose-6-phosphate dehydrogenase (G6PD) deficiency</p> <p>Glucose-6-phosphate dehydrogenase (G6PD) deficiency is X-linked and clinically important cause of oxidant haemolysis. It affects all races but is most common in those of African, Asian or Mediterranean descent.</p> <p>Deficiency of the G6PD enzyme results in reduced glutathione making the red cells vulnerable to oxidative damage and thus liable to haemolysis.</p> <p>↓ G6PD enzyme → ↓ glutathione → ↑ red cell susceptibility to oxidative stress</p> <ul style="list-style-type: none">• Being X-linked, the disease affects mainly men but in areas of high frequency it is not uncommon to find homozygous women. (<i>In the exam, it is usually always male patient</i>)



- Most individuals with the G6PD defect are asymptomatic and unaware of their status
- Haemolysis occurs after exposure to oxidants or infection.
- Acute episodes of haemolysis with fava beans (termed favism)

There are many drugs that can elicit haemolysis in patients with G6PD deficiency. One drug that you would definitely need to look out for in the exam is → antimalarials: primaquine

Presentation:

- Most are asymptomatic
- May be a history of neonatal jaundice, severe enough to require exchange transfusion
- May have history of drug-induced haemolysis
- Gallstones are common
- Pallor from anaemia
- During a crisis jaundice occurs
- Back or abdominal pain (usually occurs when >50% haemolysis occurs)
- Splenomegaly may occur

There are typically 4 ways the patient might present in PLAB. Below are the specifics:

Drug-induced haemolysis in G6PD deficiency

- Begins 1-3 days after ingestion of drug
- Anaemia most severe 7-10 days after ingestion
- Associated with low back and abdominal pain
- Urine becomes dark (black sometimes)
- Red cells develop Heinz body inclusions
- Haemolysis is typically self-limiting

Haemolysis due to infection and fever

- 1-2 days after onset of fever
- Mild anaemia develops
- Commonly seen in pneumonic illnesses

Favism

- Hours/days after ingestion of fava beans (broad beans)
- Urine becomes red or very dark
- Shock may develop and it may be fatal

Neonatal jaundice

- May develop kernicterus (possible permanent brain damage)

Laboratory investigation (Important for exam)

- In steady state (i.e. no haemolysis) the RBCs appear normal
- Heinz bodies is seen on blood film in drug-induced haemolysis. Bite cells are also seen. Bite cells are cells with Heinz bodies that pass through the spleen and have part of the membrane removed

Laboratory investigations (Less important for exam)



	<ul style="list-style-type: none">• Spherocytes and RBC fragments on blood film is seen if there is severe haemolysis• Increased reticulocytes• Increased unconjugated bilirubin• decreased haptoglobins <p>Diagnosis G6PD enzyme activity - is the definitive test</p> <p>Diagnosis should not be done during the haemolytic episode but be done during the steady state which is around 6 weeks after the episode of haemolysis. The reason behind this is the diagnosis is difficult during haemolytic episode since reticulocytes have increased levels of enzyme and may get abnormal result.</p> <p>Management</p> <ul style="list-style-type: none">• Avoidance of precipitating drugs, and broad (fava) beans• Transfuse in severe haemolysis or symptomatic anaemia• IV fluids to maintain good urine output• In infants, exchange transfusion may be required• Splenectomy may be of value in severe recurrent haemolysis
36.	<p>A 10 year old boy is brought to the hospital with a rash over his buttocks associated with abdominal pain and vomiting. He is accompanied by his mother and stepfather. His mother had left him for the weekend with the stepfather and she was called to come back from holiday as he started to have blood in his urine with the rash. Social services have been notified. What is the most likely diagnosis?</p> <p>A. Non accidental injury B. Idiopathic thrombocytopenic purpura C. Henoch-Schönlein purpura D. Acute lymphoblastic leukaemia (ALL) E. Haemolytic uraemic syndrome</p> <p>Rash over buttock, abdominal pain and vomiting, blood in urine or stool suggest Henoch-Schönlein purpura.</p> <p>A mixed picture question like this can be sometimes confusing as in this question there are some features of a non accidental injury (stepfather). Be sure to evaluate all the signs and symptoms before jumping to the conclusion that this is a non accidental injury.</p> <p>Henoch-Schönlein purpura (HSP)</p> <p>Presentation:</p> <ul style="list-style-type: none">• Purpura (non-blanching) over buttocks and extensor surfaces• Arthralgia (especially in the knees and ankles)• Abdominal pain <p>Diagnosis:</p>



	<ul style="list-style-type: none">• Mainly a clinical diagnosis• Look for elevated ESR, IgA• Raised creatinine ; labs consistent with nephropathy <p>Treatment:</p> <ul style="list-style-type: none">• Self-limiting; conservative management• NSAIDs for arthralgic pain → beware of choosing this option if case stem has impaired renal involvement!• Corticosteroids can improve associated arthralgia and the symptoms associated with gastrointestinal dysfunction
37.	<p>A 6 year old boy has recurrent episodes of spontaneous bleeding into his knee joints. His father has a similar illness. Factor VIII was found to be decreased on a blood test. What is the SINGLE most likely diagnosis?</p> <p>A. Haemophilia A B. Haemophilia B C. Von willebrand's disease D. Sickle cell anaemia E. Thalassaemia</p> <p>Factor VIII deficiency is evidence of haemophilia A.</p> <p>Haemophilia A and B</p> <ul style="list-style-type: none">• Are congenital bleeding disorders with low levels of factor VIII (haemophilia A, classical haemophilia) or IX (haemophilia B, Christmas disease).• Sex-linked inheritance.• Males are typically affected• Female carriers are rarely symptomatic <p>Clinical presentation</p> <ul style="list-style-type: none">• Haemophilia A and B are clinically indistinguishable• Symptoms depend on the factor level.• History of spontaneous bleeding into joints, especially the knees, ankles and elbows, without a history of significant trauma. Spontaneous haemarthrosis are virtually pathognomonic• Intramuscular haemorrhage may also occur. Spontaneous bleeding into arms, legs, or any site. The bleeding may lead to nerve compression, or compartment syndrome <p>Investigations</p> <ul style="list-style-type: none">• Prothrombin time, bleeding time, fibrinogen levels and von Willebrand factor are normal• Activated partial thromboplastin time (APTT) is usually prolonged but can be normal in mild disease• Factor VIII/XI assay to diagnose <p><i>Remember these test to distinguish haemophilia from Von Willebrand disease</i></p>



	<ul style="list-style-type: none">• <i>Haemophilia</i><ul style="list-style-type: none">• Only aPTT is prolonged• Has factor type bleeding (deep bleeding into muscles and joints)• <i>Von willebrand disease</i><ul style="list-style-type: none">• aPTT and bleeding time are prolonged• Has platelet type bleeding (mucosal bleeding) <p>Haemophilia A-specific treatment</p> <ul style="list-style-type: none">• Desmopressin raises factor VIII levels, and may be sufficient to treat Haemophilia type A• Major bleeds (eg haemarthrosis): May need treatment with recombinant factor VIII• Do not give IM injections when factor is low <p>Haemophilia B-specific treatment</p> <ul style="list-style-type: none">• Recombinant factor IX is the treatment of choice• Note: Desmopressin has no value in treatment of haemophilia B <p>Avoid NSAIDS and IM injections! <i>Questions may arise with this topic. In PLAB, in whichever scenario, avoid NSAIDS and IM injection as the answer in Haemophilia. NSAIDs must not be employed for the fear of gastrointestinal haemorrhage. If needed, give opiates for pain relief and if given parenterally, pick intravenously (IV) or possibly subcutaneously (SC) but not intramuscularly (IM). IM injection will produce a large and painful haematoma.</i></p>
38.	<p>A 11 year old boy has an upper respiratory tract infection followed by a low grade fever with erythematous macular rash, especially on the back of the legs. A few hours later, the macules evolve into purpuric lesions that are slightly raised and do not blanch on a glass test. He also complains of a headache and joint stiffness. His blood tests show:</p> <p>Haemoglobin 123 g/L White cell count $3.3 \times 10^9/L$ Platelets $211 \times 10^9/L$</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Meningitis B. Sepsis C. Henoch-Schönlein purpura D. Idiopathic thrombocytopenic purpura E. Thrombotic thrombocytopenic purpura</p> <p>The blood results are all normal. The rash in the legs that are non blanching and the joint stiffness are hints towards Henoch-Schönlein purpura.</p> <p>About 50-90% of patients have a preceding upper respiratory tract infection (URTI) which explains the boy's history in the given question.</p>



	<p>Patients with Henoch-Schönlein purpura may appear to be mildly ill, with low-grade fever.</p> <p>Given that his WBC are not raised and he has no other symptoms of meningitis, HSP would be the the better option. Headaches may also occur in HSP.</p> <p>Henoch-Schönlein purpura (HSP)</p> <p>Presentation:</p> <ul style="list-style-type: none">• Purpura (non-blanching) over buttocks and extensor surfaces• Arthralgia (especially in the knees and ankles)• Abdominal pain <p>Diagnosis:</p> <ul style="list-style-type: none">• Mainly a clinical diagnosis• Look for elevated ESR, IgA• Raised creatinine ; labs consistent with nephropathy <p>Treatment:</p> <ul style="list-style-type: none">• Self-limiting; conservative management• NSAIDs for arthralgic pain → beware of choosing this option if case stem has impaired renal involvement!• Corticosteroids can improve associated arthralgia and the symptoms associated with gastrointestinal dysfunction
39.	<p>A 65 year old man presents with back pain. Abdominal examination reveals splenomegaly</p> <p>Blood report shows the following:</p> <p>Haemoglobin 102 g/L White cell count 122 x 10⁹/L Platelets 102 x 10⁹/L ESR 25</p> <p>He has been found to have Philadelphia chromosome on cytogenetic analysis. What is the SINGLE most likely diagnosis?</p> <p>A. Acute lymphoblastic leukaemia (ALL) B. Acute myeloid leukaemia (AML) C. Chronic myeloid leukaemia (CML) D. Chronic lymphocytic leukaemia (CLL) E. Lymphoma</p> <p>Anaemia, raised WBC count, low platelet (platelet may be variable) are known features of Chronic myeloid leukaemia (CML)</p> <p>Splenomegaly (particularly if massive) is very suggestive of Chronic myeloid leukaemia (CML)</p>



and Philadelphia chromosome is diagnostic of Chronic myeloid leukaemia (CML).

Chronic myeloid leukaemia (CML)

CML is a clonal bone marrow stem cell disorder in which a proliferation of **mature granulocytes** (neutrophils, eosinophils and basophils) and their precursors is found.

CML typically progresses through three stages:

1. Chronic phase

The immune system is competent and patients are asymptomatic for prolonged periods - (typically 4-5 years) More than 90% of patients are diagnosed in the initial chronic phase.

2. Accelerated phase

In about two thirds of patients, the chronic phase transforms into an accelerated phase characterised by a moderate increase in blast cells, increasing anaemia or thrombocytopenia.

3. Blast crisis or blastic phase

After a variable amount of time (usually months) the accelerated phase progresses to acute blastic transformation. Features of blastic phase include bone marrow or peripheral blasts $\geq 30\%$, severe constitutional symptoms due to tumour burden (weight loss, fever, night sweats, bone pain), infection and bleeding

Clinical Presentation

Usually presents at age 40 to 50 years old (middle-age)

85-90% of patients are diagnosed in the chronic phase and in recent years about 40% of patients have been diagnosed before any symptoms developed, with incidental abnormalities spotted on a blood test.

- Fatigue (due to anaemia)
- Weight loss
- Night sweats
- Abdominal discomfort → from massive enlargement of spleen (this is common)
- Splenomegaly → this is the most common physical finding, which may extend towards the right iliac fossa (Seen in $>75\%$)
- Hepatomegaly
- Enlarged lymph nodes (rare)
- Low grade fever
- Gout due to rapid cell turnover

Note: Enlarged lymph nodes are rare and infection are uncommon because these white cells retain the majority of their function

Investigations at presentation

- FBC:
 - Leukocytosis is common (often $>100 \times 10^9/L$)
 - Differential shows granulocytes at all stages of development (increased numbers of neutrophils, myelocytes, basophils, eosinophils)
 - Platelets may be elevated, decreased or normal levels



	<ul style="list-style-type: none">• A mild-to-moderate, usually normochromic and normocytic, anaemia is common• Peripheral blood smear - all stages of maturation seen• Biochemistry - U&Es are usually normal at presentation, lactate dehydrogenase is usually raised, serum urate may be raised.• Bone marrow aspiration and biopsy are essential to quantify the percentage of blasts and basophils, to assess the degree of fibrosis and to obtain material for cytogenetic-molecular analyses.• Cytogenetics - the characteristic feature in CML is the Ph chromosome, found in about 90% of cases. (oxford says > 80%). This can be found on cytogenetic analysis of blood or bone marrow. <p>Take home notes:</p> <ul style="list-style-type: none">• <i>The main feature of the disease is an elevated white blood cell count consisting predominantly of neutrophils. Blasts are either absent or present in very small amounts.</i>• <i>The Philadelphia chromosome is present in more than 90% of patients with chronic myeloid leukaemia (CML).</i>• <i>In PLAB, look for the massive enlargement of spleen</i>
40.	<p>A 20 year old man presents with develops low back pain, shortness of breath and dizziness 3 days after taking primaquine to treat malaria. His past medical history is significant for neonatal jaundice. What is the SINGLE most likely diagnosis?</p> <p>A. Haemolytic anaemia B. Pulmonary embolism C. Allergy to primaquine D. Thalassaemia trait E. Hereditary sideroblastic anaemia</p> <p>Haemolysis in this case was elicited by the treatment of malaria using primaquine. This patient has G6PD deficiency.</p> <p>Glucose-6-phosphate dehydrogenase (G6PD) deficiency</p> <p>Glucose-6-phosphate dehydrogenase (G6PD) deficiency is X-linked and clinically important cause of oxidant haemolysis. It affects all races but is most common in those of African, Asian or Mediterranean descent.</p> <p>Deficiency of the G6PD enzyme results in reduced glutathione making the red cells vulnerable to oxidative damage and thus liable to haemolysis.</p> <p>↓ G6PD enzyme → ↓ glutathione → ↑ red cell susceptibility to oxidative stress</p> <ul style="list-style-type: none">• Being X-linked, the disease affects mainly men but in areas of high frequency it is not uncommon to find homozygous women. (<i>In the exam, it is usually always male patient</i>)• Most individuals with the G6PD defect are asymptomatic and unaware of their status• Haemolysis occurs after exposure to oxidants or infection.



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There are many drugs that can elicit haemolysis in patients with G6PD deficiency. One drug that you would definitely need to look out for in the exam is → antimalarials: primaquine

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41.	<p>A 4 year old boy is presents with haemarthrosis following a minor fall. His father and uncle have similar bleeding problems throughout their lives. What is the SINGLE most likely mode of inheritance?</p> <p>A. Autosomal co-dominant B. Autosomal dominant C. Autosomal recessive D. X-linked E. Mitochondrial gene defect</p> <p>Haemophilia A and B</p> <ul style="list-style-type: none">• Are congenital bleeding disorders with low levels of factor VIII (haemophilia A, classical haemophilia) or IX (haemophilia B, Christmas disease).• Sex-linked inheritance.• Males are typically affected• Female carriers are rarely symptomatic <p>Clinical presentation</p> <ul style="list-style-type: none">• Haemophilia A and B are clinically indistinguishable• Symptoms depend on the factor level.• History of spontaneous bleeding into joints, especially the knees, ankles and elbows, without a history of significant trauma. Spontaneous haemarthrosis are virtually pathognomonic• Intramuscular haemorrhage may also occur. Spontaneous bleeding into arms, legs, or any site. The bleeding may lead to nerve compression, or compartment syndrome <p>Investigations</p> <ul style="list-style-type: none">• Prothrombin time, bleeding time, fibrinogen levels and von Willebrand factor are normal



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42.	<p>A 50 year old man presents fatigue, weight loss and complains of abdominal fullness. An abdominal examination reveals splenomegaly extending towards the right iliac fossa.</p> <p>Blood report shows the following:</p> <p>Haemoglobin 82 g/L White cell count 102 x 109/L Platelets 160 x 109/L</p> <p>Philadelphia chromosome was positive on cytogenetic analysis. What is the SINGLE most likely diagnosis?</p> <p>A. Acute lymphoblastic leukaemia (ALL) B. Acute myeloid leukaemia (AML) C. Chronic myeloid leukaemia (CML) D. Chronic lymphocytic leukaemia (CLL) E. Lymphoma</p>



Anaemia, raised WBC count are known features of Chronic myeloid leukaemia (CML). Splenomegaly (particularly if massive) is very suggestive of Chronic myeloid leukaemia (CML) and Philadelphia chromosome is diagnostic of Chronic myeloid leukaemia (CML)

Note that platelets can be normal in CML.

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43.	<p>A 30 year old woman presents with complaints of lethargy and frequent infections. Upon examination, massive splenomegaly with no associated lymphadenopathy is observed. A full blood count reveals the following:</p> <p>Hb: 10.2g/dL WBC: $2 \times 10^9/L$ Platelets: $20 \times 10^9/L$</p> <p>What tissue biopsy will you do to prove the diagnosis?</p> <p>A. Liver B. Lymph node C. Spleen D. Bone marrow E. Lung</p> <p>According to her lab results, this woman appears to have a pancytopenia (reduction in all three haematopoietic cell lines). In order to prove a diagnosis of aplastic anaemia, a bone marrow biopsy must be done.</p> <p>Please note that pancytopenia and aplastic anaemia are NOT interchangeable terms.</p> <ul style="list-style-type: none">• Pancytopenia is a decrease in all three haematopoietic cell lines. Pancytopenia can be suspected from a full blood count with or without a peripheral blood smear.



	<ul style="list-style-type: none">Aplastic anaemia is pancytopenia AND histological evidence of a hypoplastic bone marrow. It is a diagnosis of exclusion and can only be made by a bone marrow biopsy.
44.	<p>A 15 year old boy is investigated after he bled excessively following a tooth extraction. He has always noted that he bruises easily with minimal trauma. His blood tests show:</p> <p>Haemoglobin 120 g/L White cell count $7 \times 10^9/L$ Platelets $168 \times 10^9/L$ Prothrombin time 13 seconds Activated partial thromboplastin time 81 seconds Bleeding time within normal ranges</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Haemophilia A B. Haemophilia B C. Von willebrand's disease D. Thrombotic thrombocytopenic purpura E. Idiopathic thrombocytopenic purpura</p> <p>The prolonged aPTT supports the diagnosis of haemophilia.</p> <p>Between both haemophilia A and B. Haemophilia A is more common and it accounts for 90% of cases of haemophilia.</p> <p>Haemophilia A and B</p> <ul style="list-style-type: none">Are congenital bleeding disorders with low levels of factor VIII (haemophilia A, classical haemophilia) or IX (haemophilia B, Christmas disease).Sex-linked inheritance.Males are typically affectedFemale carriers are rarely symptomatic <p>Clinical presentation</p> <ul style="list-style-type: none">Haemophilia A and B are clinically indistinguishableSymptoms depend on the factor level.History of spontaneous bleeding into joints, especially the knees, ankles and elbows, without a history of significant trauma. Spontaneous haemarthrosis are virtually pathognomonicIntramuscular haemorrhage may also occur. Spontaneous bleeding into arms, legs, or any site. The bleeding may lead to nerve compression, or compartment syndrome <p>Investigations</p> <ul style="list-style-type: none">Prothrombin time, bleeding time, fibrinogen levels and von Willebrand factor are normal



	<ul style="list-style-type: none">Activated partial thromboplastin time (APTT) is usually prolonged but can be normal in mild diseaseFactor VIII/XI assay to diagnose <p>Remember these test to distinguish haemophilia from Von Willebrand disease</p> <ul style="list-style-type: none">Haemophilia<ul style="list-style-type: none">Only aPTT is prolongedHas factor type bleeding (deep bleeding into muscles and joints)Von willebrand disease<ul style="list-style-type: none">aPTT and bleeding time are prolongedHas platelet type bleeding (mucosal bleeding) <p>Haemophilia A-specific treatment</p> <ul style="list-style-type: none">Desmopressin raises factor VIII levels, and may be sufficient to treat Haemophilia type AMajor bleeds (eg haemarthrosis): May need treatment with recombinant factor VIIIDo not give IM injections when factor is low <p>Haemophilia B-specific treatment</p> <ul style="list-style-type: none">Recombinant factor IX is the treatment of choiceNote: Desmopressin has no value in treatment of haemophilia B <p>Avoid NSAIDS and IM injections!</p> <p><i>Questions may arise with this topic. In PLAB, in whichever scenario, avoid NSAIDS and IM injection as the answer in Haemophilia. NSAIDs must not be employed for the fear of gastrointestinal haemorrhage. If needed, give opiates for pain relief and if given parenterally, pick intravenously (IV) or possibly subcutaneously (SC) but not intramuscularly (IM). IM injection will produce a large and painful haematoma.</i></p>
45.	<p>A 15 year old boy has marked pallor and jaundice. He has to receive regular blood transfusions to maintain his haemoglobin above a certain level. His medical history includes diabetes. He has obvious skull bossing and hepatosplenomegaly. What is the SINGLE most likely diagnosis?</p> <p>A. Hereditary spherocytosis B. Glucose-6-phosphate dehydrogenase (G6PD) deficiency C. Alpha thalassemia trait D. Beta thalassemia major E. Hereditary sideroblastic anaemia</p> <p>The signs and symptoms point towards a beta thalassaemia major.</p> <p>Alpha thalassemia trait have mild anaemia and are usually clinically asymptomatic.</p> <p>Thalassaemias</p> <p><i>Thalassaemia is not a very commonly asked topic. You should only go through this if you have time to spare. We have only included the important points of thalassaemia.</i></p>



	<p>Important points to know:</p> <ul style="list-style-type: none">• <u>α thalassaemia major</u> → is usually lethal in utero. It should be considered when hydrops fetalis is diagnosed• <u>β thalassaemia major</u> → Presents in infancy often includes failure to thrive, vomiting feeds, sleepiness, stunted growth and irritability. In severe, untreated cases there may be:<ul style="list-style-type: none">• Hepatosplenomegaly• Bony deformities (frontal bossing). The extra medullary haemopoiesis occurs in response to anaemia.• Marked pallor and slight to moderate jaundice• Iron overload can cause endocrinopathy with diabetes, thyroid, adrenal and pituitary disorders• β-thalassaemia carrier status is often confused with iron deficiency due to reduced MCV and MCH. But note that in iron deficiency, serum ferritin and iron is low while in thalassaemia they are usually high. <p>Management for thalassaemia major:</p> <ul style="list-style-type: none">• Lifelong blood transfusions are needed to maintain a haemoglobin level higher than 9.5 g/dL (or some authors say 9.0 g/dL)• Iron chelation to prevent overload syndrome (Oral deferiprone + desferrioxamine SC twice weekly)• A histocompatible marrow transplant can offer the chance of a cure
46.	<p>A 52 year old female has loss a few litres of blood during a hysterectomy. She is due for a blood transfusion. What is the SINGLE most likely test involved in the preparation of blood transfusion?</p> <p>A. Indirect Coombs test B. Direct Coombs test C. Sickle solubility test D. G6PD enzyme assay E. Osmotic fragility test</p> <p>Coombs test</p> <p>There are two Coombs tests:</p> <ol style="list-style-type: none">1. The direct Coombs test (DCT, also known as direct antiglobulin test or DAT)2. The indirect Coombs test (also known as indirect antiglobulin test or IAT) <p><u>Direct Coombs test</u></p> <ul style="list-style-type: none">• Used to test for autoimmune haemolytic anaemia<ul style="list-style-type: none">• It is used to detect these antibodies or complement proteins that are bound to the surface of red blood cells. <i>Basically, it is used to test patients RED BLOOD CELLS.</i>• A positive Coombs test indicates that an immune mechanism is attacking the patient's own RBCs. Examples:



	<ul style="list-style-type: none">• Common examples of alloimmune haemolysis<ul style="list-style-type: none">○ Haemolytic disease of the newborn (also known as HDN or erythroblastosis fetalis)○ Rh D haemolytic disease of the newborn (also known as Rh disease)○ ABO haemolytic disease of the newborn○ Alloimmune haemolytic transfusion reactions• Common examples of autoimmune haemolysis<ul style="list-style-type: none">○ Cold agglutinin disease : Infectious mononucleosis• Drug-induced immune-mediated hemolysis<ul style="list-style-type: none">○ Penicillins, Cephalosporins <p><u>Indirect Coombs test</u></p> <ul style="list-style-type: none">• Used in prenatal testing of pregnant women and in testing blood prior to a blood transfusion.<ul style="list-style-type: none">• It detects antibodies against RBCs that are present unbound in the patient's serum. In this case, serum is extracted from the blood sample taken from the patient and tested. <i>Basically, it is used to test patients SERUM (not red blood cells)</i>• If agglutination occurs, the indirect Coombs test is positive.<ul style="list-style-type: none">• Examples of use:<ul style="list-style-type: none">○ Blood transfusion preparation : Antibody screening, cross matching○ Antenatal antibody screening: to screen pregnant women for IgG antibodies that are likely to pass through the placenta into the fetal blood and cause haemolytic disease of the newborn
47.	<p>A 7 year old boy presents with epistaxis of 2 hour duration. The bleeding has been controlled. His blood tests show:</p> <p>Platelets $219 \times 10^9/L$ Prothrombin time 13 seconds Activated partial thromboplastin time 42 seconds Bleeding time is normal</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Haemophilia B. Von willebrand disease C. Idiopathic thrombocytopenic purpura D. Vitamin K deficiency E. Anatomical defect</p> <p>All his blood results are normal. Anatomical defect is the only possibility.</p>



48. A 20 year old woman has had bruising and petechiae for a week. She also reports frequent nose bleeds and menorrhagia but is otherwise well. A blood count showed:

Haemoglobin 111 g/L
White cell count $6.3 \times 10^9/L$
Platelets $39 \times 10^9/L$

What is the single SINGLE most likely diagnosis?

- A. Acute leukaemia
- B. Aplastic anaemia
- C. HIV infection
- D. Idiopathic thrombocytopenic purpura**
- E. Systemic lupus erythematosus

Idiopathic thrombocytopenic purpura is usually seen in children but that does not mean it can't happen in adults.

As the patient is otherwise well, acute leukaemia, HIV and SLE are unlikely. A normal WBC count excludes aplastic anaemia. Thus the likely diagnosis is ITP. Idiopathic thrombocytopenic purpura fits with her symptoms of bruising and petechiae. Older girls may have menorrhagia. Some experience nosebleeds.

The isolated thrombocytopenia in a well patient points to a diagnosis of idiopathic thrombocytopenic purpura.

Idiopathic thrombocytopenic purpura in adults

Unlike ITP in children, adult ITP does not normally follow an infection and usually has an insidious onset. It is more likely to follow a chronic course in affected adults than in children.

Presentation:

- As in children, adults with ITP may demonstrate a range of symptoms from none at all through to severe haemorrhage
- Bleeding, purpura, epistaxis and menorrhagia

Laboratory diagnosis

- Isolated thrombocytopenia; blood count otherwise normal

Management:

- Prednisolone
- IV immunoglobulin
- Emergency platelet transfusion
 - Only in life threatening haemorrhage. (usually platelet less than $20 \times 10^9/L$)



49. A 5 year old child has bleeding gums and sore throat for the last 3 months. He feels tired and lethargic all the time. On examination, splenomegaly was noted. Blood results show:

Hb 7.8g/dl

WCC $3 \times 10^9/L$

Platelets $48 \times 10^9/L$.

What is the SINGLE most likely diagnosis?

A. Acute lymphoblastic leukaemia (ALL)

B. Acute myeloid leukaemia (AML)

C. Chronic myeloid leukaemia (CML)

D. Chronic lymphocytic leukaemia (CLL)

E. Hodgkin's lymphoma

The commonest leukaemia in children is Acute lymphoblastic leukaemia (ALL)

Bleeding gums (low platelet), feeling tired and lethargic, sore throat, splenomegaly are all well known features of Acute lymphoblastic leukaemia (ALL)

Acute lymphoblastic leukaemia (ALL)

Aetiology

Most cases of acute leukaemia arise with no apparent cause. There are several well known associations with the development of acute leukaemia that are sometimes present. These include radiation exposure, chemotherapeutic agents, as well as some retroviruses.

Clinical Presentation

The most common presentation results from the effects of the leukaemic blast cells crowding out the normal marrow cells, resulting in symptoms of pancytopenia even if the total white blood cell count is normal.

- Fatigue from anaemia is the most common presenting complaint.
- Bleeding, petechiae, purpura or ecchymoses (due to thrombocytopenia)
- Recurrent and severe infections (oral, throat, skin, perianal infections commonly). This is because of the underproduction or abnormal function of white blood cells.
- Left upper quadrant fullness and early satiety due to splenomegaly (10-20%)

Acute lymphocytic leukaemia (ALL) is more common in children, and acute myelogenous leukaemia (AML) is more common in adults, but they are indistinguishable clinically. This means you cannot determine the diagnosis only from the clinical presentation.

ALL is more often associated with infiltration of other organs, but AML can do it as well. Enlargement of the liver, spleen, and lymph nodes and bone pain are common at presentation.



	<p>Diagnosis</p> <p>The FBC is the first clue to the diagnosis. Depression of all three cell lines is common at presentation.</p> <p><u>FBC</u></p> <ul style="list-style-type: none">• Anaemia is usual and Hb may be below 5 g/L• The white cell count can be low, normal, or elevated• Thrombocytopenia <p>Many other disorders can present as pancytopenia similar to leukaemia such as aplastic anaemia, infections involving the marrow, metastatic cancer involving the marrow, vitamin B12 deficiency, SLE, hypersplenism, and myelofibrosis. However, none of these will have leukaemic blasts circulating in the peripheral blood. Although pancytopenia can cause all of the above, in PLAB, when pancytopenia is in the options, it is usually leukaemia, or aplastic anaemia.</p> <p>A bone marrow biopsy showing numerous blasts confirms the diagnosis of acute leukaemia.</p> <p>It is very unlikely that the PLAB questions would ask you to differentiate the AML from ALL using specific test. However, if a child (young age) is given with signs and symptoms of pancytopenia, ALL would be the most likely as it is the commonest childhood leukaemia.</p> <p>Note:</p> <ul style="list-style-type: none">• ALL is the commonest childhood leukaemia. Peak age is 2–4 years old.• The Philadelphia chromosome occurs in 15–30% (mostly adults) and is associated with a poor prognosis.
50.	<p>A 55 year old man presents with significant weight loss, fever and night sweats. Hodgkin's lymphoma was later diagnosed. What type of cell is associated with Hodgkin's lymphoma?</p> <p>A. T-cells B. Reed-Sternberg cells C. B-cells D. Macrophages E. Auer rods</p> <p>A very easy and direct question. The diagnostic cells in Hodgkin's lymphoma are Reed-Sternberg cells.</p> <p>Hodgkin's lymphoma</p> <p>Hodgkin's lymphoma is a malignant tumour of the lymphatic system that is characterised histologically by the presence of multinucleated giant cells (Reed-Sternberg cells)</p> <p>There are subtypes of Hodgkin's lymphoma but these are not commonly asked.</p>



	<p>Presentation</p> <ul style="list-style-type: none">• Most patients present with an enlarged but otherwise asymptomatic lymph node, typically in the lower neck or supraclavicular region. They are painless, non-tender, 'rubbery' superficial lymph nodes. They also can be axillary or inguinal nodes• Mediastinal masses are frequent and are sometimes discovered on a routine CXR.• Systemic symptoms of drenching night sweats, unexplained fever $>38^{\circ}\text{C}$, and weight loss of $>10\%$ over six months are termed B symptoms and are identified in approximately 25% of patients.• Pruritus and lethargy• Besides the lymphadenopathy. findings on examination include hepatomegaly, splenomegaly, and superior vena cava syndrome (SVC syndrome is due to an obstruction from mediastinal lymph node involvement causing features of a mass effect) <p>Diagnosis</p> <ul style="list-style-type: none">• Tissue diagnosis: Lymph node excision biopsy if possible
51.	<p>A 12 year old boy has sudden development of purpura 2 weeks after an upper respiratory tract infection. A blood count showed:</p> <p>Haemoglobin 119 g/L White cell count $6.8 \times 10^9/\text{L}$ Platelets $35 \times 10^9/\text{L}$ Prothrombin time 12 seconds Activated partial thromboplastin time 41 seconds Bleeding time 10 minutes</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Idiopathic thrombocytopenic purpura B. Thrombotic thrombocytopenic purpura C. Von Willebrand's disease D. Haemophilia A E. Haemophilia B</p> <p>The isolated thrombocytopenia and history of an upper respiratory tract infection with the development of purpura suggest idiopathic thrombocytopenic purpura.</p> <p>In idiopathic thrombocytopenic purpura, bleeding time may be increased like the above.</p> <p>Idiopathic thrombocytopenic purpura</p> <p>Presentation:</p> <ul style="list-style-type: none">• Follows viral infection or immunisation• The most common presentation is petechiae or bruising. Petechiae mainly in arms and legs - sudden onset• Up to a quarter present with nosebleeds



- Haematuria and gastrointestinal bleeds are less common.
- Older girls may have menorrhagia
- Otherwise the patient is well and physical examination is normal

Laboratory diagnosis

- Isolated thrombocytopenia; blood count otherwise normal

Management:

- Prednisolone
- IV immunoglobulin
- Emergency platelet transfusion
 - Only in life threatening haemorrhage. (usually platelet less than $20 \times 10^9/L$)

- 52.** A 33 year old woman complains of tiredness for the last 3 months, On routine blood test, she is found to have a haemoglobin of 85 g/L, low mean cell volume, and low ferritin. What is the SINGLE most likely diagnosis?

- A. Iron deficiency**
B. Folate deficiency
C. Thalassaemia
D. Anaemia of chronic disease
E. Sideroblastic anaemia

The table below is a short summary of common findings given in the exam to help you differentiate between the cause of the anaemia.

Microcytic	Macrocytic
<i>Iron Deficiency</i> <ul style="list-style-type: none">• Fe ↓• Ferritin ↓• TIBC↑	Megaloblastic → Hypersegmented neutrophils
<i>Thalassaemia</i> <ul style="list-style-type: none">• Normal iron studies• Electrophoresis to see type	<i>B12 deficiency</i> <ul style="list-style-type: none">• Neurological problems• Subacute combined degeneration of the cord• Serum B12 ↓
<i>Anaemia of chronic disease</i> <ul style="list-style-type: none">• Fe ↓• Ferritin ↑• TIBC↓	<i>Folate deficiency</i> <ul style="list-style-type: none">• Serum folate ↓
<i>Sideroblastic anaemia</i>	Normoblastic (Non megaloblastic) <ul style="list-style-type: none">• Alcohol• Liver disease• Hypothyroidism• Pregnancy



- Fe ↑
- Ferritin ↑
- In sideroblastic anaemia, the body has iron available but cannot incorporate it into haemoglobin

- Reticulocytosis
- Myelodysplasia
- Drugs: cytotoxics

Normocytic (normal MCV)

- Haemolytic anaemias: Bloods in general show ↑LDH, ↑ unconjugated bilirubin, ↓ Haptoglobin, ↑ Reticulocytes

Sickle Cell

- Blood smear → Sick cells
- Sick cell solubility test → This test detects the presence of haemoglobin S but does not distinguish between sickle cell disease and trait
- Hb Electrophoresis → For asymptomatic patients to see if patient has trait
- Treatment: Acute → IV fluids, morphine, O₂, antibiotics
- Prophylaxis → Hydroxyurea. Also needs pneumococcal vaccines

Autoimmune haemolysis

- COOMBS test
- Treat with steroids

Hereditary spherocytosis

- Blood film → spherocytes
- Osmotic fragility test
- Treatment: Splenectomy

G6PD deficiency

- Blood film → Heinz bodies
- Check G6PD levels
- Treatment: stop offending drugs



53. A 36 year old woman has massive bleeding from a venipuncture site. Petechiae was noticed on her skin. Her blood tests show:

Haemoglobin 113 g/L

White cell count $9.8 \times 10^9/L$

Platelets $48 \times 10^9/L$

Prothrombin time, activated partial thromboplastin time and bleeding time are prolonged. Fibrin degradation products were elevated. What is the SINGLE most likely diagnosis?

A. Haemophilia

B. Disseminated intravascular coagulation

C. Idiopathic thrombocytopenic purpura

D. Factor V Leiden mutation

E. Warfarin overdose

Disseminated intravascular coagulation (DIC)

Presentation

- Ecchymoses or spontaneous bleeding at venepuncture sites, and the site of trauma
- Bleeding from ears, nose and throat, gastrointestinal tract
- Petechiae, purpura

Diagnosis

No single laboratory test that can establish or rule out the diagnosis of DIC, therefore assess the whole clinical picture, taking into account the clinical condition of the patient, and all available laboratory results.

- Thrombocytopenia (in up to 98% of cases) → around 50% of them would have a platelets count less than $50 \times 10^9/L$
- Fibrin degradation products (inc. D-dimer) is elevated
- Prothrombin time (PT) is elevated
- Activated partial thromboplastin time (aPTT) is elevated
- Fibrinogen level low

Remember, everything is elevated except platelets and fibrinogen.

Treatment

- Treat the underlying condition
- Transfusion of platelets or plasma (components) for patients with severe bleeds
- In bleeding patients with DIC and prolonged PT and aPTT, administer fresh frozen plasma (FFP)



54. A 62 year old man presents with bone pain at his ribs which have been present for the last couple of weeks. He has been feeling tired lately and finds himself always thirsty. His previous FBC shows a haemoglobin of 9 g/dL. Biochemistry shows calcium levels of 4.0mmol/L and ALP of 118 iu/L. What cell type is most likely to be found in abundance in the bone marrow?

- A. Plasma cell
- B. Myeloid cell
- C. Bence-jones protein
- D. Megakaryocytes
- E. Reticulocytes

Multiple Myeloma

A clonal abnormality of plasma cells resulting in their overproduction replacing the bone marrow as well as the production of large quantities of functionless immunoglobulins.

Clinical Presentation

- Bone disease → Bone pain is the most common clinical manifestation. This is most commonly in the back and the ribs, secondary to pathologic fractures.
- Recurrent bacterial infection
- Renal failure
- Anaemia → may present with weakness, fatigue, and pallor
- Hypercalcaemia → may present with polyuria, polydipsia, and altered mental status

Rarely, symptoms of a hyperviscosity syndrome such as blurry vision, and confusion, may occur.

Diagnosis

- Although a normochromic, normocytic anaemia is the most common laboratory finding, this is not specific for myeloma.
- A serum protein electrophoresis with a markedly elevated monoclonal immunoglobulin spike is present in almost all cases
- Urine protein electrophoresis: looks for the presence of Bence Jones' protein.
- Plain x-ray of the skeletal system and skull will reveal the punched out lytic lesion caused by the overproduction of osteoclast activating factor from the plasma cells.
- Hypercalcaemia from the destruction of bone. Note that the hypercalcaemia is associated with normal alkaline phosphatase.
- Elevation in the BUN and creatinine from the damage to the kidney from the immunoglobulins
- A bone marrow biopsy with abundance of plasma cells confirms a diagnosis of multiple myeloma
- Rouleaux formation can be seen on blood film (rouleaux means a cylindrical packet of coins)

Management

This is beyond what will be asked in PLAB part 1



55.	<p>A 67 year old woman with a history of rheumatoid arthritis presents to her GP's office with complaints of epigastric discomfort, especially after eating. She has been on long term methotrexate and NSAID therapy for her condition. On examination, she appears pale but seems otherwise well. A full blood count reveals the following:</p> <p>Hb: 10.5g/dL MCV, MCH and MCHC are all decreased</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Folate deficiency anaemia B. Vitamin B12 deficiency anaemia C. Haemolytic anaemia D. Aplastic anaemia E. Chronic gastrointestinal bleeding</p> <p>The blood values are indicative of a microcytic anaemia. It is true that methotrexate can cause a folic acid deficiency anaemia but since the blood results clearly show a microcytic anaemia (and folic acid deficiency anaemia is a macrocytic anaemia) the only correct conclusion that we can reach is that the long term NSAID therapy is the culprit for her anaemia.</p>
56.	<p>A 25 year old lady has a chest infection in which she is receiving antibiotics for. She has shortness of breath, feels tired and weak. On examination she looks pale and purpura is seen on her legs. Blood results show the following:</p> <p>Haemoglobin 76 g/L White cell count $1.2 \times 10^9/L$ Neutrophils $0.3 \times 10^9/L$ Platelets $19 \times 10^9/L$ Reticulocytes 1%</p> <p>Blood film morphology was unremarkable. A bone marrow aspirate shows a reduction in haemopoietic cells. What is the SINGLE most likely underlying diagnosis?</p> <p>A. Pernicious anaemia B. Chronic myeloid leukaemia C. Aplastic anaemia D. Acute myeloid leukaemia E. Acute lymphoblastic leukaemia</p> <p>She has a signs and symptoms of anaemia. The blood picture shows pancytopenia which rules out pernicious anaemia as an underlying cause.</p> <p>Normal morphology rules out the possibility of acute myeloid leukaemia, and acute lymphoblastic leukaemia.</p> <p>Chronic myeloid leukaemia usually has leucocytosis.</p>



A bone marrow aspirate that shows a gross reduction in all haemopoietic tissue is seen classically in aplastic anaemia. Decrease reticulocytes support the diagnosis.

Aplastic anaemia

Aplastic anaemia is a rare, potentially life-threatening failure of haemopoiesis characterised by pancytopenia and hypoplastic marrow (the marrow stops making cells).

Causes

Most cases are autoimmune, triggered by drugs (viruses, eg parvovirus, hepatitis) or irradiation.

Presentation

Aplastic anaemia can present abruptly over, or insidiously over, weeks to months.

Clinical manifestations are proportional to the peripheral-blood cytopenias and include:

- Symptoms of anaemia (pallor, headache, palpitations, dyspnoea, fatigue, or ankle oedema) Note: Anaemic symptoms are usually less severe due to the chronic onset
- Symptoms of thrombocytopenia (skin or mucosal haemorrhage, visual disturbance due to retinal haemorrhage, petechial rashes)
- Infection (a less common presentation) particularly upper and lower respiratory tracts, skin, mouth, and peri-anal
- There is no lymphadenopathy or hepatosplenomegaly (in the absence of infection).

Diagnostic tests:

Marrow examination is needed for the diagnosis

Note: To define aplastic anaemia based on FBC and bone marrow findings, at least two of the following must be present:

- Haemoglobin <10 g/dL
- Platelet count $< 50 \times 10^9/L$
- Neutrophil count $<1.5 \times 10^9/L$

It is also important to note that the blood film morphology is unremarkable which differentiates it from some other types of leukaemias.

- 57.** A 53 year old man presents complaining of weight loss, lethargy, increasing abdominal discomfort and gout for the past year. On examination, spleen is palpated 5 cm below the left costal margin. His blood tests show:
- Haemoglobin 105 g/L
White cell count $202 \times 10^9/L$
Platelets $103 \times 10^9/L$
85% neutrophils
Serum urea 7.0 mmol/L
Serum creatinine 151 $\mu\text{mol/L}$
Sodium 140 mmol/L



Potassium 4 mmol/L
Philadelphia chromosome positive

What is the SINGLE most likely diagnosis?

- A. **Chronic myeloid leukaemia**
- B. Chronic lymphocytic leukaemia
- C. Acute myeloid leukaemia
- D. Malaria
- E. Lymphoma

The clincher here is the massive spleen. Although there are many causes of massive spleen, for the purpose of PLAB, massive spleen can only be caused by Chronic Myeloid Leukaemia (CML) or Malaria

Weight loss, lethargy, increasing abdominal discomfort support the diagnosis of CML

If you see a middle aged man/woman with a huge spleen → likely to be Chronic myeloid leukaemia (CML). Malaria would likely have a travel history of some sort.

Mnemonic: CML → Crazy Massive Large Spleen

The blood picture fits perfectly for CML in this question. Slight anaemia, high WBC and high neutrophils. Philadelphia chromosome also helps with the diagnosis.

Gout in this question is because of the rapid cell turnover seen in CML.

Chronic myeloid leukaemia (CML)

CML is a clonal bone marrow stem cell disorder in which a proliferation of **mature granulocytes** (neutrophils, eosinophils and basophils) and their precursors is found.

CML typically progresses through three stages:

1. Chronic phase
The immune system is competent and patients are asymptomatic for prolonged periods - (typically 4-5 years) More than 90% of patients are diagnosed in the initial chronic phase.
2. Accelerated phase
In about two thirds of patients, the chronic phase transforms into an accelerated phase characterised by a moderate increase in blast cells, increasing anaemia or thrombocytopenia.
3. Blast crisis or blastic phase
After a variable amount of time (usually months) the accelerated phase progresses to acute blastic transformation. Features of blastic phase include bone marrow or peripheral blasts ≥30%, severe constitutional symptoms due to tumour burden (weight loss, fever, night sweats, bone pain), infection and bleeding



Clinical Presentation

Usually presents at age 40 to 50 years old (middle-age)

85-90% of patients are diagnosed in the chronic phase and in recent years about 40% of patients have been diagnosed before any symptoms developed, with incidental abnormalities spotted on a blood test.

- Fatigue (due to anaemia)
- Weight loss
- Night sweats
- Abdominal discomfort → from massive enlargement of spleen (this is common)
- Splenomegaly → this is the most common physical finding, which may extend towards the right iliac fossa (Seen in >75%)
- Hepatomegaly
- Enlarged lymph nodes (rare)
- Low grade fever
- Gout due to rapid cell turnover

Note: Enlarged lymph nodes are rare and infection are uncommon because these white cells retain the majority of their function

Investigations at presentation

- FBC:
 - Leukocytosis is common (often $>100 \times 10^9/L$)
 - Differential shows granulocytes at all stages of development (increased numbers of neutrophils, myelocytes, basophils, eosinophils)
 - Platelets may be elevated, decreased or normal levels
 - A mild-to-moderate, usually normochromic and normocytic, anaemia is common
- Peripheral blood smear - all stages of maturation seen
- Biochemistry - U&Es are usually normal at presentation, lactate dehydrogenase is usually raised, serum urate may be raised.
- Bone marrow aspiration and biopsy are essential to quantify the percentage of blasts and basophils, to assess the degree of fibrosis and to obtain material for cytogenetic-molecular analyses.
- Cytogenetics - the characteristic feature in CML is the Ph chromosome, found in about 90% of cases. (oxford says > 80%). This can be found on cytogenetic analysis of blood or bone marrow.

Take home notes:

- *The main feature of the disease is an elevated white blood cell count consisting predominantly of neutrophils. Blasts are either absent or present in very small amounts.*
- *The Philadelphia chromosome is present in more than 90% of patients with chronic myeloid leukaemia (CML).*
- *In PLAB, look for the massive enlargement of spleen*



58. A 90 year old woman is brought to the hospital complaining of back pain and has been referred to the surgeon. She has been saying that her mother is due to visit her today and that somebody must have broken her lower back as she is in agony. Her blood tests show:

Haemoglobin 109 g/L
Serum urea 7.5 mmol/L
Serum creatinine 293 μ mol/L
Serum calcium 3.02 mmol/l

What SINGLE investigations is most likely to lead to a diagnosis?

- A. Ultrasound KUB
- B. X-ray Spine
- C. Intravenous urogram
- D. Urine protein electrophoresis to look for Bence-Jones Protein**
- E. Mental state exam

Multiple myeloma is the suspected diagnosis here.

Elevation in the BUN and creatinine is seen due to the damage to the kidney from the immunoglobulins

Anaemia is the most common laboratory finding in multiple myeloma

She is 90 years old. It is unlikely that her mother is still alive. The statement that she thinks her mother is going to visit her today points to some sort of confusion. This confusion can be seen in multiple myeloma due to hyperviscosity and also hypercalcaemia.

Multiple Myeloma

A clonal abnormality of plasma cells resulting in their overproduction replacing the bone marrow as well as the production of large quantities of functionless immunoglobulins.

Clinical Presentation

- Bone disease → Bone pain is the most common clinical manifestation. This is most commonly in the back and the ribs, secondary to pathologic fractures.
- Recurrent bacterial infection
- Renal failure
- Anaemia → may present with weakness, fatigue, and pallor
- Hypercalcaemia → may present with polyuria, polydipsia, and altered mental status

Rarely, symptoms of a hyperviscosity syndrome such as blurry vision, and confusion, may occur.

Diagnosis

- Although a normochromic, normocytic anaemia is the most common laboratory finding, this is not specific for myeloma.



	<ul style="list-style-type: none">• A serum protein electrophoresis with a markedly elevated monoclonal immunoglobulin spike is present in almost all cases• Urine protein electrophoresis: looks for the presence of Bence Jones' protein.• Plain x-ray of the skeletal system and skull will reveal the punched out lytic lesion caused by the overproduction of osteoclast activating factor from the plasma cells.• Hypercalcaemia from the destruction of bone. Note that the hypercalcaemia is associated with normal alkaline phosphatase.• Elevation in the BUN and creatinine from the damage to the kidney from the immunoglobulins• A bone marrow biopsy with abundance of plasma cells confirms a diagnosis of multiple myeloma• Rouleaux formation can be seen on blood film (rouleaux means a cylindrical packet of coins)
59.	<p>A 15 year old girl was admitted with chest infection. She was treated and her symptoms had regressed. She was brought again with fever and the same symptoms a few days later. It was found that all her blood works done in the hospital showed a mild anaemia and thrombocytopenia. What is the SINGLE most likely diagnosis?</p> <p>A. Acute myeloid leukaemia (AML) B. Acute lymphoblastic leukaemia (ALL) C. Aplastic anaemia D. Chronic myeloid leukaemia (CML) E. Chronic lymphocytic leukaemia (CLL)</p> <p>The age is the only factor that support the diagnosis of acute lymphoblastic leukaemia (ALL) along with the given picture. The same picture can happen in aplastic anaemia but there is not a single factor mentioned in favour of it. So acute lymphoblastic leukaemia (ALL) can be taken as best option in the given scenario.</p> <p>Acute lymphoblastic leukaemia (ALL)</p> <p>Aetiology Most cases of acute leukaemia arise with no apparent cause. There are several well known associations with the development of acute leukaemia that are sometimes present. These include radiation exposure, chemotherapeutic agents, as well as some retroviruses.</p> <p>Clinical Presentation The most common presentation results from the effects of the leukaemic blast cells crowding out the normal marrow cells, resulting in symptoms of pancytopenia even if the total white blood cell count is normal.</p> <ul style="list-style-type: none">• Fatigue from anaemia is the most common presenting complaint.• Bleeding, petechiae, purpura or ecchymoses (due to thrombocytopenia)• Recurrent and severe infections (oral, throat, skin, perianal infections commonly). This is because of the underproduction or abnormal function of white blood cells.• Left upper quadrant fullness and early satiety due to splenomegaly (10-20%)



Acute lymphocytic leukaemia (ALL) is more common in children, and acute myelogenous leukaemia (AML) is more common in adults, but they are indistinguishable clinically. This means you cannot determine the diagnosis only from the clinical presentation.

ALL is more often associated with infiltration of other organs, but AML can do it as well. Enlargement of the liver, spleen, and lymph nodes and bone pain are common at presentation.

Diagnosis

The FBC is the first clue to the diagnosis. Depression of all three cell lines is common at presentation.

FBC

- Anaemia is usual and Hb may be below 5 g/L
- The white cell count can be low, normal, or elevated
- Thrombocytopenia

Many other disorders can present as pancytopenia similar to leukaemia such as aplastic anaemia, infections involving the marrow, metastatic cancer involving the marrow, vitamin B12 deficiency, SLE, hypersplenism, and myelofibrosis. However, none of these will have leukaemic blasts circulating in the peripheral blood. Although pancytopenia can cause all of the above, in PLAB, when pancytopenia is in the options, it is usually leukaemia, or aplastic anaemia.

A bone marrow biopsy showing numerous blasts confirms the diagnosis of acute leukaemia.

It is very unlikely that the PLAB questions would ask you to differentiate the AML from ALL using specific test. However, if a child (young age) is given with signs and symptoms of pancytopenia, ALL would be the most likely as it is the commonest childhood leukaemia.

Note:

- ALL is the commonest childhood leukaemia. Peak age is 2–4 years old.
- The Philadelphia chromosome occurs in 15–30% (mostly adults) and is associated with a poor prognosis.



60.	<p>A 34 year old woman developed a purpuric rash on the back of her legs. She also reports frequent nose bleeds and menorrhagia. A blood count shows:</p> <p>Haemoglobin 119 g/L White cell count $6.8 \times 10^9/L$ Platelets $59 \times 10^9/L$</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Idiopathic thrombocytopenic purpura B. Thrombotic thrombocytopenic purpura C. Von Willebrand's disease D. Antiphospholipid syndrome E. Henoch-Schönlein purpura</p> <p>Idiopathic thrombocytopenic purpura is usually seen in children but that does not mean it can't happen in adults.</p> <p>Chronic ITP which is mainly seen in women can run a fluctuating course of bleeding, purpura, epistaxis and menorrhagia.</p> <p>The isolated thrombocytopenia in a well patient points to a diagnosis of idiopathic thrombocytopenic purpura.</p> <p>Idiopathic thrombocytopenic purpura in adults Unlike ITP in children, adult ITP does not normally follow an infection and usually has an insidious onset. It is more likely to follow a chronic course in affected adults than in children.</p> <p>Presentation:</p> <ul style="list-style-type: none">• As in children, adults with ITP may demonstrate a range of symptoms from none at all through to severe haemorrhage• Bleeding, purpura, epistaxis and menorrhagia <p>Laboratory diagnosis</p> <ul style="list-style-type: none">• Isolated thrombocytopenia; blood count otherwise normal <p>Management:</p> <ul style="list-style-type: none">• Prednisolone• IV immunoglobulin• Emergency platelet transfusion<ul style="list-style-type: none">• Only in life threatening haemorrhage. (usually platelet less than $20 \times 10^9/L$)
61.	<p>A 21 year old man has episodic right upper quadrant pain. An abdominal ultrasound reveals gallstones. His father had a splenectomy when he was young. His blood tests show:</p> <p>Haemoglobin 91 g/L Mean cell haemoglobin concentration 369 g/L</p>



Platelets $250 \times 10^9/L$
White cell count $6.3 \times 10^9/L$

What is the SINGLE most likely diagnosis?

A. Hereditary spherocytosis

- B. Glucose-6-phosphate dehydrogenase (G6PD) deficiency
- C. Alpha thalassemia
- D. Beta thalassemia
- E. Hereditary sideroblastic anaemia

The evidence of increased MCHC, gallstones and family history points towards hereditary spherocytosis.

Hereditary Spherocytosis

Hereditary Spherocytosis is the most common inherited RBC membrane defect characterized by variable degrees of haemolysis, spherocytic RBCs with increased osmotic fragility.

Approximately 75% of cases display an autosomal dominant pattern of inheritance; the rest are recessive forms and de novo mutations.

Clinical features

- Patients may present at any age with haemolytic anaemia, jaundice (either from haemolysis or gallstones) and splenomegaly
- 20-30% of patients have mild disease with an increased red cell turnover compensated with adequate replacement. They are neither symptomatic nor anaemic, but may have mild splenomegaly, slight reticulocytosis and minimal spherocytes visible.
- 60-70% of patients have moderate disease and half of these present in childhood with anaemia.
- Neonates with severe hereditary disease do not always present at birth with anaemia, but haemoglobin may fall dramatically over the first few weeks of life and may be severe enough to require exchange transfusion.
- Occasional aplastic crises occur, e.g. with parvovirus B19 infection.

Diagnosis

(These are the 3 most important test that you need to know in the exam for Hereditary Spherocytosis)

- Blood film shows spherocytes and increased reticulocytes
- MCHC would be elevated
- Osmotic fragility test → confirms presence of spherocytes but does not permit hereditary spherocytosis to be distinguished from other spherocytic haemolytic disorders such as autoimmune haemolytic anaemia. This is not reliable until six months of age.

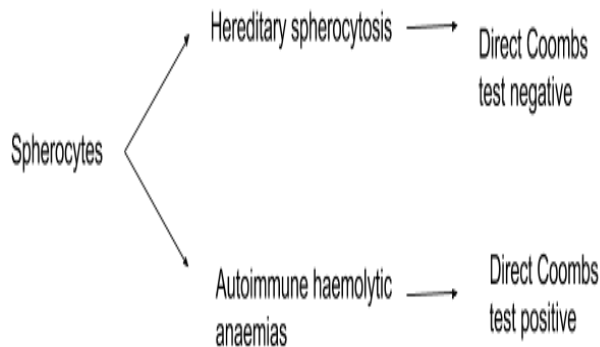
Some authors mention that osmotic fragility test is unreliable and is no longer recommended. However, it is still considered the gold standard despite missing up to



20% of cases. In the PLAB exam, osmotic fragility test may be given as a choice for a diagnostic test for Hereditary Spherocytosis. Pick it if it is.

Note:

Spherocytosis almost always refers to hereditary spherocytosis but note that spherocytes are found in hereditary spherocytosis and also autoimmune haemolytic anaemias. The test to distinguish the two would be a direct Coombs test. Hereditary spherocytosis has a negative direct Coombs test but autoimmune haemolytic anaemias have a positive direct Coombs test



Management

Steroid therapy

- effective in augmenting haemoglobin levels during haemolytic crises in patients with moderate disease

Folate supplementation

Splenectomy

- eliminates anaemia and hyperbilirubinaemia and lowers the high reticulocyte number to nearly normal levels
- Splenectomy is curative in most patients but increased recognition of the long-term risks of splenectomy has led to re-evaluation of the role of splenectomy.

Mild cases do not usually require folate supplements or splenectomy

Complications

- Rapid haemolysis can be triggered by viral infections and produce jaundice, anaemia and occasionally abdominal pain and tender splenomegaly. Supportive treatment is usually all that is needed.
- Aplastic crises (aplastic anaemia). They are most commonly caused by infection with parvovirus B19 and usually last 10-14 days. This can be life-threatening.

When you see parvovirus B19 in the exam, immediately think of sickle cell anaemia or hereditary spherocytosis



	<p>Parvovirus and anaemia</p> <p>Although most patients have a decrease of erythropoiesis (production of red blood cells) during parvovirus infection, it is most dangerous in patients with sickle cell anaemia or hereditary spherocytosis, as they are heavily dependent on erythropoiesis due to the reduced lifespan of the red cells.</p>
62.	<p>A 7 year old boy has recurrent episodes of spontaneous bleeding into his knee joints and muscles. Factor IX was found deficient. What is the SINGLE most likely diagnosis?</p> <p>A. Haemophilia A B. Christmas disease C. Von willebrand's disease D. Sickle cell anaemia E. Thalassaemia</p> <p>Factor IX deficiency is evidence of haemophilia B (Christmas disease).</p> <p>Haemophilia A and B</p> <ul style="list-style-type: none">• Are congenital bleeding disorders with low levels of factor VIII (haemophilia A, classical haemophilia) or IX (haemophilia B, Christmas disease).• Sex-linked inheritance.• Males are typically affected• Female carriers are rarely symptomatic <p>Clinical presentation</p> <ul style="list-style-type: none">• Haemophilia A and B are clinically indistinguishable• Symptoms depend on the factor level.• History of spontaneous bleeding into joints, especially the knees, ankles and elbows, without a history of significant trauma. Spontaneous haemarthrosis are virtually pathognomonic• Intramuscular haemorrhage may also occur. Spontaneous bleeding into arms, legs, or any site. The bleeding may lead to nerve compression, or compartment syndrome <p>Investigations</p> <ul style="list-style-type: none">• Prothrombin time, bleeding time, fibrinogen levels and von Willebrand factor are normal• Activated partial thromboplastin time (APTT) is usually prolonged but can be normal in mild disease• Factor VIII/XI assay to diagnose <p>Remember these test to distinguish haemophilia from Von Willebrand disease</p> <ul style="list-style-type: none">• <i>Haemophilia</i><ul style="list-style-type: none">• <i>Only aPTT is prolonged</i>• <i>Has factor type bleeding (deep bleeding into muscles and joints)</i>• <i>Von willebrand disease</i><ul style="list-style-type: none">• <i>aPTT and bleeding time are prolonged</i>• <i>Has platelet type bleeding (mucosal bleeding)</i>



	<p>Haemophilia A-specific treatment</p> <ul style="list-style-type: none">• Desmopressin raises factor VIII levels, and may be sufficient to treat Haemophilia type A• Major bleeds (eg haemarthrosis): May need treatment with recombinant factor VIII• Do not give IM injections when factor is low <p>Haemophilia B-specific treatment</p> <ul style="list-style-type: none">• Recombinant factor IX is the treatment of choice• Note: Desmopressin has no value in treatment of haemophilia B <p>Avoid NSAIDs and IM injections!</p> <p><i>Questions may arise with this topic. In PLAB, in whichever scenario, avoid NSAIDs and IM injection as the answer in Haemophilia. NSAIDs must not be employed for the fear of gastrointestinal haemorrhage. If needed, give opiates for pain relief and if given parenterally, pick intravenously (IV) or possibly subcutaneously (SC) but not intramuscularly (IM). IM injection will produce a large and painful haematoma.</i></p>
63.	<p>A 66 year old woman is confused, and lethargic. Her son reports gradual confusion over the last 4 months. On examination, she looks pale. Blood test have been done which shows a megaloblastic anaemia. Both B12 deficiency and folate deficiency was diagnosed on further investigation. What is the SINGLE most likely treatment for her anaemia?</p> <p>A. Oral folic acid and start Intramuscular vitamin B12 when folic acid levels are normal B. Intramuscular vitamin B12 and start oral folic acid when vitamin B12 levels are normal C. Oral folic acid only D. Intramuscular vitamin B12 only E. Iron tablets</p> <p>It is important in a patient who is also deficient in both vitamin B12 and folic acid to treat the B12 deficiency first to avoid precipitating subacute combined degeneration of the cord. Once the vitamin B12 levels are normal, then start oral folic acid.</p>
64.	<p>A 4 year old boy has a history of epistaxis. Prothrombin time, bleeding time, fibrinogen levels and von Willebrand factor are normal. Activated partial thromboplastin time (APTT) was found to be prolonged. His blood tests show:</p> <p>Haemoglobin 112 g/L White cell count $5 \times 10^9/L$ Platelets $250 \times 10^9/L$</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Haemophilia B. Idiopathic thrombocytopenic purpura C. Sickle cell anaemia D. Haemolytic uraemic syndrome</p>



E. Thalassaemia

Despite the fact that many people remember haemophilia presenting with bleeding into joints and muscles, you would need to know that epistaxis may occur in haemophilia

Activated partial thromboplastin time (APTT) that is prolonged with everything else being normal points towards haemophilia.

Factor VIII and IX levels should be offered to confirm the diagnosis.

Haemophilia A and B

- Are congenital bleeding disorders with low levels of factor VIII (haemophilia A, classical haemophilia) or IX (haemophilia B, Christmas disease).
- Sex-linked inheritance.
- Males are typically affected
- Female carriers are rarely symptomatic

Clinical presentation

- Haemophilia A and B are clinically indistinguishable
- Symptoms depend on the factor level.
- History of spontaneous bleeding into joints, especially the knees, ankles and elbows, without a history of significant trauma. Spontaneous haemarthrosis are virtually pathognomonic
- Intramuscular haemorrhage may also occur. Spontaneous bleeding into arms, legs, or any site. The bleeding may lead to nerve compression, or compartment syndrome

Investigations

- Prothrombin time, bleeding time, fibrinogen levels and von Willebrand factor are normal
- Activated partial thromboplastin time (APTT) is usually prolonged but can be normal in mild disease
- Factor VIII/XI assay to diagnose

Remember these test to distinguish haemophilia from Von Willebrand disease

- *Haemophilia*
 - *Only aPTT is prolonged*
 - *Has factor type bleeding (deep bleeding into muscles and joints)*
- *Von willebrand disease*
 - *aPTT and bleeding time are prolonged*
 - *Has platelet type bleeding (mucosal bleeding)*

Haemophilia A-specific treatment

- Desmopressin raises factor VIII levels, and may be sufficient to treat Haemophilia type A
- Major bleeds (eg haemarthrosis): May need treatment with recombinant factor VIII
- Do not give IM injections when factor is low



	<p>Haemophilia B-specific treatment</p> <ul style="list-style-type: none">• Recombinant factor IX is the treatment of choice• Note: Desmopressin has no value in treatment of haemophilia B <p>Avoid NSAIDs and IM injections!</p> <p><i>Questions may arise with this topic. In PLAB, in whichever scenario, avoid NSAIDs and IM injection as the answer in Haemophilia. NSAIDs must not be employed for the fear of gastrointestinal haemorrhage. If needed, give opiates for pain relief and if given parenterally, pick intravenously (IV) or possibly subcutaneously (SC) but not intramuscularly (IM). IM injection will produce a large and painful haematoma.</i></p>
65.	<p>A 41 year old man has fatigue and palpitations. Physical examination reveals a red sore tongue, angular stomatitis and koilonychia. His blood tests show:</p> <p>Haemoglobin 85 g/L Mean cell volume 75 fL</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Folate deficiency B. Vitamin B12 deficiency C. Iron deficiency D. Vitamin E deficiency E. Haemolytic anemia</p> <p>Angular stomatitis, sore red tongue can be seen in both B12 deficiency and iron deficiency although angular stomatitis is more of a sign of iron deficiency. Koilonychia is usually seen in iron deficiency.</p> <p>But the key to the question is the mean cell volume. As this is decreased, it cannot be B12 deficiency or folate deficiency. Iron deficiency leads to microcytic anaemia so we would expect the MCV to be low.</p> <p>Iron-deficiency anaemia</p> <p>Aetiology</p> <ul style="list-style-type: none">• Blood loss from the gastrointestinal (GI) tract is the most common cause of iron-deficiency anaemia in adult men and postmenopausal women• Blood loss due to menorrhagia is the most common cause of iron deficiency in premenopausal women• In tropical countries, infestation of the gut may cause iron-deficiency anaemia, especially with hookworm and schistosomiasis• <u>Common causes of blood loss include:</u><ul style="list-style-type: none">• Non-steroidal anti-inflammatory drug (NSAID) use• Colonic carcinoma• Gastric carcinoma• Gastric or duodenal ulceration



	<ul style="list-style-type: none">• Dietary inadequacy• Failure of iron absorption: Malabsorption conditions such as coeliac disease• Excessive requirements for iron: Pregnancy <p>Laboratory tests</p> <ul style="list-style-type: none">• Low Haemoglobin• Low Mean cell volume (MCV)• Low Mean cell haemoglobin concentration (MCHC)• High Red cell distribution width (RDW)• Low serum ferritin• High Total iron-binding capacity <p><i>The above laboratory test are important to remember for PLAB as they may be asked</i></p>
66.	<p>A 52 year old lady has been suffering from chronic rheumatoid arthritis and is on methotrexate and naproxen. Blood results show:</p> <p>Haemoglobin 83 g/L Mean cell volume (MCV) 70 fL</p> <p>What is the SINGLE most likely cause?</p> <p>A. Haemorrhoids B. Gastrointestinal haemorrhage C. Menorrhagia D. Folate deficiency E. B12 deficiency</p> <p>Gastrointestinal haemorrhage would be a cause of microcytic anaemia like in the given scenario and it fits with the history of prolonged use of NSAIDS.</p> <p>Folate and B12 deficiency are in the category of macrocytic anaemias.</p> <p>There should be no reason for menorrhagia. Besides, the patient is 52 years old. The average age of menopause in UK is 51. Blood loss from the gastrointestinal (GI) tract is the most common cause of iron deficiency anaemia in postmenopausal women.</p> <p>There is also no relation with haemorrhoids</p>
67.	<p>A 6 year old child has a history of recurrent mild jaundice that occurs a few days after the onset of a fever. Between the episodes he is well. 3 days ago, he had a chest infection and his blood results show:</p> <p>Haemoglobin 106 g/L Mean cell haemoglobin concentration 330 g/L</p> <p>Bite cells are seen on blood film. What is the SINGLE most likely diagnosis?</p>



A. Hereditary spherocytosis

B. Glucose-6-phosphate dehydrogenase (G6PD) deficiency

C. Thalassemia

D. Sickle cell disease

E. Congenital storage disorder

There are some precipitating factors of haemolysis causing jaundice in patients with G6PD deficiency. Among them include infection.

Bite cells point towards the diagnosis of G6PD.

Glucose-6-phosphate dehydrogenase (G6PD) deficiency

Glucose-6-phosphate dehydrogenase (G6PD) deficiency is X-linked and clinically important cause of oxidant haemolysis. It affects all races but is most common in those of African, Asian or Mediterranean descent.

Deficiency of the G6PD enzyme results in reduced glutathione making the red cells vulnerable to oxidative damage and thus liable to haemolysis.

↓ G6PD enzyme → ↓ glutathione → ↑ red cell susceptibility to oxidative stress

- Being X-linked, the disease affects mainly men but in areas of high frequency it is not uncommon to find homozygous women. *(In the exam, it is usually always male patient)*
- Most individuals with the G6PD defect are asymptomatic and unaware of their status
- Haemolysis occurs after exposure to oxidants or infection.
- Acute episodes of haemolysis with fava beans (termed favism)

There are many drugs that can elicit haemolysis in patients with G6PD deficiency. One drug that you would definitely need to look out for in the exam is → antimalarials: primaquine

Presentation:

- Most are asymptomatic
- May be a history of neonatal jaundice, severe enough to require exchange transfusion
- May have history of drug-induced haemolysis
- Gallstones are common
- Pallor from anaemia
- During a crisis jaundice occurs
- Back or abdominal pain (usually occurs when >50% haemolysis occurs)
- Splenomegaly may occur

There are typically 4 ways the patient might present in PLAB. Below are the specifics:

Drug-induced haemolysis in G6PD deficiency

- Begins 1-3 days after ingestion of drug
- Anaemia most severe 7-10 days after ingestion



- Associated with low back and abdominal pain
- Urine becomes dark (black sometimes)
- Red cells develop Heinz body inclusions
- Haemolysis is typically self-limiting

Haemolysis due to infection and fever

- 1-2 days after onset of fever
- Mild anaemia develops
- Commonly seen in pneumonic illnesses

Favism

- Hours/days after ingestion of fava beans (broad beans)
- Urine becomes red or very dark
- Shock may develop and it may be fatal

Neonatal jaundice

- May develop kernicterus (possible permanent brain damage)

Laboratory investigation (Important for exam)

- In steady state (i.e. no haemolysis) the RBCs appear normal
- Heinz bodies is seen on blood film in drug-induced haemolysis. Bite cells are also seen. Bite cells are cells with Heinz bodies that pass through the spleen and have part of the membrane removed

Laboratory investigations (Less important for exam)

- Spherocytes and RBC fragments on blood film is seen if there is severe haemolysis
- Increased reticulocytes
- Increased unconjugated bilirubin
- decreased haptoglobins

Diagnosis

G6PD enzyme activity - is the definitive test

Diagnosis should not be done during the haemolytic episode but be done during the steady state which is around 6 weeks after the episode of haemolysis. The reason behind this is the diagnosis is difficult during haemolytic episode since reticulocytes have increased levels of enzyme and may get abnormal result.

Management

- Avoidance of precipitating drugs, and broad (fava) beans
- Transfuse in severe haemolysis or symptomatic anaemia
- IV fluids to maintain good urine output
- In infants, exchange transfusion may be required
- Splenectomy may be of value in severe recurrent haemolysis



68. A 45 year old woman who is taking medication for the treatment of rheumatoid arthritis presents with dizziness, fatigability and lack of energy. Blood results show:

Haemoglobin 80 g/L

Mean cell volume (MCV) 106 fL

What is the SINGLE most likely cause of her anaemia?

A. Steroids

B. Chronic disease

C. NSAIDs

D. Methotrexate

E. Leflunomide

Methotrexate is a folate antagonist. It causes folate deficiency which is shown as a macrocytic anaemia like in the case above.

Anaemia of chronic disease would be considered as a cause if the MCV was normal or low. Rheumatoid arthritis leading to anaemia of chronic disease has red cells that are usually hypochromic, microcytic or normochromic, normocytic.

Folate Deficiency

Folate deficiency represents the other main deficiency cause of megaloblastic anaemia. (The other main deficiency is B12 deficiency).

Megaloblastic anaemias are a heterogeneous group of disorders sharing common morphological characteristics. Erythrocytes are larger and have higher nuclear-to-cytoplasmic ratios compared to normoblastic cells. Neutrophils can be hypersegmented and megakaryocytes are abnormal.

Causes:

Dietary deficiency

- Malabsorption (eg, coeliac disease, jejunal resection, inflammatory bowel disease).
- Poor intake
- Alcohol excess (also causes impaired utilisation)

Antifolate drugs

Example: Sulfasalazine, methotrexate

Diagnosis:

The haematological features indistinguishable from those of B12 deficiency (macrocytic, megaloblastic anaemia). Distinction is on basis of demonstration of reduced red cell and serum folate. Vitamin B12 levels should be assessed at the same time due to the close relationship in metabolism.

In PLAB, one distinction that may help you choose between B12 and folate deficiency is the diet. Good food sources of folate include broccoli, brussels sprouts, asparagus, peas (basically



	<p><i>vegetables). Thus if the given scenario is a vegetarian, it is unlikely that he is suffering from folate deficiency. In that case, pick B12 deficiency.</i></p> <p>Management: Folic acid 5 mg/d PO for 4 months.</p> <p>Note: It is important in a patient who is also deficient in both vitamin B12 and folic acid to treat the B12 deficiency first to avoid precipitating subacute combined degeneration of the cord. Once the vitamin B12 levels are normal, then start oral folic acid.</p>
69.	<p>A 4 year old boy presents with recurrent episodes of self limiting spontaneous bleeding into his arms and legs that occurs with minimal trauma. His blood tests show:</p> <p>Prothrombin time 11 seconds Activated partial thromboplastin time 69 seconds Bleeding time is normal</p> <p>His father and uncle suffer from a similar illness. What is the SINGLE most likely diagnosis?</p> <p>A. Haemophilia B. Thalassemia C. Von Willebrand's disease D. Idiopathic thrombocytopenic purpura E. Thrombotic thrombocytopenic purpura</p> <p>Activated partial thromboplastin time (APTT) that is prolonged with everything else being normal points towards haemophilia.</p> <p>Factor VIII and IX levels should be offered to confirm the diagnosis.</p> <p>Haemophilia A and B</p> <ul style="list-style-type: none">• Are congenital bleeding disorders with low levels of factor VIII (haemophilia A, classical haemophilia) or IX (haemophilia B, Christmas disease).• Sex-linked inheritance.• Males are typically affected• Female carriers are rarely symptomatic <p>Clinical presentation</p> <ul style="list-style-type: none">• Haemophilia A and B are clinically indistinguishable• Symptoms depend on the factor level.• History of spontaneous bleeding into joints, especially the knees, ankles and elbows, without a history of significant trauma. Spontaneous haemarthrosis are virtually pathognomonic• Intramuscular haemorrhage may also occur. Spontaneous bleeding into arms, legs, or any site. The bleeding may lead to nerve compression, or compartment syndrome <p>Investigations</p>



	<ul style="list-style-type: none">• Prothrombin time, bleeding time, fibrinogen levels and von Willebrand factor are normal• Activated partial thromboplastin time (APTT) is usually prolonged but can be normal in mild disease• Factor VIII/XI assay to diagnose <p>Remember these test to distinguish haemophilia from Von Willebrand disease</p> <ul style="list-style-type: none">• Haemophilia<ul style="list-style-type: none">• Only aPTT is prolonged• Has factor type bleeding (deep bleeding into muscles and joints)• Von willebrand disease<ul style="list-style-type: none">• aPTT and bleeding time are prolonged• Has platelet type bleeding (mucosal bleeding) <p>Haemophilia A-specific treatment</p> <ul style="list-style-type: none">• Desmopressin raises factor VIII levels, and may be sufficient to treat Haemophilia type A• Major bleeds (eg haemarthrosis): May need treatment with recombinant factor VIII• Do not give IM injections when factor is low <p>Haemophilia B-specific treatment</p> <ul style="list-style-type: none">• Recombinant factor IX is the treatment of choice• Note: Desmopressin has no value in treatment of haemophilia B <p>Avoid NSAIDS and IM injections!</p> <p><i>Questions may arise with this topic. In PLAB, in whichever scenario, avoid NSAIDS and IM injection as the answer in Haemophilia. NSAIDs must not be employed for the fear of gastrointestinal haemorrhage. If needed, give opiates for pain relief and if given parenterally, pick intravenously (IV) or possibly subcutaneously (SC) but not intramuscularly (IM). IM injection will produce a large and painful haematoma.</i></p>
70.	<p>A 22 year old man with sickle cell anaemia has shortness of breath, pallor, headache and lethargy. Infection with parvovirus is suspected. His blood tests show:</p> <p>Haemoglobin 53 g/L</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Aplastic crises B. Haemolytic crisis C. Splenic sequestration crisis D. Vaso-occlusive crises E. Acute chest syndrome</p> <p>When you see parvovirus B19 in the exam, immediately think of sickle cell anaemia or hereditary spherocytosis with the diagnosis of aplastic crisis at hand.</p>



Sickle cell crisis

Sickle cell anaemia is characterised by periods of good health with intervening crises

There are four main types of crises:

Thrombotic crises (Vaso-occlusive crises)

- This is the most common type of crisis. It is the obstruction of the microcirculation by sickled red blood cells, causing ischaemia
 - Precipitated by cold, infection, or dehydration
 - Occlusion causes pain which may be severe
 - Infarcts occur in various organs
- Commonly presenting scenarios in exams are
- Occlusion causing mesenteric ischaemia, mimicking an acute abdomen
 - Avascular necrosis e.g. femoral head

Sequestration crises

- Is the sudden enlargement of the spleen, causing a decrease in haemoglobin concentration, circulatory collapse and hypovolaemic shock
- Occurs mainly in babies and young children
- The severity is variable but can present with shock and anaemia
- Acute splenic sequestration has been defined as an acute fall of haemoglobin and markedly elevated reticulocyte count, together with an acute increase in spleen size
- Recurrent splenic sequestration is an indication for splenectomy

Aplastic crises

- Is the temporary cessation of erythropoiesis, causing severe anaemia
- Caused by infection with parvovirus B19
- Most patients have a decrease of erythropoiesis (production of red blood cells) during parvovirus infection, however it is most dangerous in patients with sickle cell anaemia or hereditary spherocytosis, as they are heavily dependent on erythropoiesis due to the reduced lifespan of the red cells.

Haemolytic crises

- Rare thus uncommon to be asked in PLAB
- During painful crises there may be a marked increase in the rate of haemolysis with a fall in the haemoglobin level



71. A 49 year old lady complains of headaches, dizziness and pruritus. She says that the pruritus is worsen after taking a hot bath. A recent FBC revealed that she has a haemoglobin of 192 g/L. What is the SINGLE most useful test to establish the diagnosis of polycythaemia rubra vera?

A. JAK mutation screen

- B. Leukocyte alkaline phosphatase
- C. Serum erythropoietin
- D. Oxygen saturation with arterial blood gas greater than 92%
- E. Bone marrow aspiration

It has recently been established that a mutation in JAK2 is present in approximately 95% of patients with PRV. JAK2 mutation is now a major criteria in the diagnosis of polycythaemia rubra vera.

Polycythaemia rubra vera (PRV)

Polycythaemia rubra vera (PRV) is the most common form of primary polycythaemia. It is a malignant proliferation of a clone derived from one pluripotent marrow stem cell.

- There is excess proliferation of RBCs, WBCs, and platelets, leading to hyperviscosity and thrombosis
- More commonly found in patients who are more than 60 years old
- A mutation in JAK2 is present in >90%

Presentation

- It may be discovered on routine blood count in a person with no related symptoms or there may be nonspecific complaints of lethargy and tiredness
- About a third present with symptoms due to thrombosis. Features include stroke, myocardial infarction, deep vein thrombosis and pulmonary embolism
- Headaches, dizziness, sweating, and tinnitus
- Bleeding from gums or easy bruising is usually mild but gastrointestinal haemorrhage can be more severe. This is secondary to abnormal platelet function
- Pruritus which is typically worse after a hot shower or bath
- Splenomegaly is present in about 75% of patients (oxford says 60%)
- Hypertension is common
- Erythema, warmth, pain, and even sometimes infarction of the distal extremities. Burning sensation in fingers and toes, are characteristic but not very common
- Facial plethora
- Gout from increased cell turnover

Note:

- There is usually an abnormally low serum erythropoietin

Management

- Venesection
- Chemotherapy options include:
 - Younger than 40 years of age: first-line is interferon



	<ul style="list-style-type: none">• Older than 40 years of age: first-line is hydroxycarbamide (hydroxyurea)• Low dose aspirin 75mg OD → To reduce thrombotic events
72.	<p>A 26 year old man develops mild anaemia following a chest infection. A blood film shows Heinz bodies. What is the SINGLE most likely diagnosis?</p> <p>A. Hereditary spherocytosis B. Glucose-6-phosphate dehydrogenase (G6PD) deficiency C. Alpha thalassemia D. Beta thalassemia E. Hereditary sideroblastic anaemia</p> <p>Heinz bodies are pathognomonic for G6PD deficiency. In PLAB, if you see a question that has Heinz bodies on a blood film, you can almost be certain that this is G6PD deficiency.</p> <p>Glucose-6-phosphate dehydrogenase (G6PD) deficiency</p> <p>Glucose-6-phosphate dehydrogenase (G6PD) deficiency is X-linked and clinically important cause of oxidant haemolysis. It affects all races but is most common in those of African, Asian or Mediterranean descent.</p> <p>Deficiency of the G6PD enzyme results in reduced glutathione making the red cells vulnerable to oxidative damage and thus liable to haemolysis.</p> <p>↓ G6PD enzyme → ↓ glutathione → ↑ red cell susceptibility to oxidative stress</p> <ul style="list-style-type: none">• Being X-linked, the disease affects mainly men but in areas of high frequency it is not uncommon to find homozygous women. (<i>In the exam, it is usually always male patient</i>)• Most individuals with the G6PD defect are asymptomatic and unaware of their status• Haemolysis occurs after exposure to oxidants or infection.• Acute episodes of haemolysis with fava beans (termed favism) <p>There are many drugs that can elicit haemolysis in patients with G6PD deficiency. One drug that you would definitely need to look out for in the exam is → antimalarials: primaquine</p> <p>Presentation:</p> <ul style="list-style-type: none">• Most are asymptomatic• May be a history of neonatal jaundice, severe enough to require exchange transfusion• May have history of drug-induced haemolysis• Gallstones are common• Pallor from anaemia• During a crisis jaundice occurs• Back or abdominal pain (usually occurs when >50% haemolysis occurs)• Splenomegaly may occur <p>There are typically 4 ways the patient might present in PLAB. Below are the specifics:</p>



Drug-induced haemolysis in G6PD deficiency

- Begins 1-3 days after ingestion of drug
- Anaemia most severe 7-10 days after ingestion
- Associated with low back and abdominal pain
- Urine becomes dark (black sometimes)
- Red cells develop Heinz body inclusions
- Haemolysis is typically self-limiting

Haemolysis due to infection and fever

- 1-2 days after onset of fever
- Mild anaemia develops
- Commonly seen in pneumonic illnesses

Favism

- Hours/days after ingestion of fava beans (broad beans)
- Urine becomes red or very dark
- Shock may develop and it may be fatal

Neonatal jaundice

- May develop kernicterus (possible permanent brain damage)

Laboratory investigation (Important for exam)

- In steady state (i.e. no haemolysis) the RBCs appear normal
- Heinz bodies is seen on blood film in drug-induced haemolysis. Bite cells are also seen. Bite cells are cells with Heinz bodies that pass through the spleen and have part of the membrane removed

Laboratory investigations (Less important for exam)

- Spherocytes and RBC fragments on blood film is seen if there is severe haemolysis
- Increased reticulocytes
- Increased unconjugated bilirubin
- decreased haptoglobins

Diagnosis

G6PD enzyme activity - is the definitive test

Diagnosis should not be done during the haemolytic episode but be done during the steady state which is around 6 weeks after the episode of haemolysis. The reason behind this is the diagnosis is difficult during haemolytic episode since reticulocytes have increased levels of enzyme and may get abnormal result.

Management

- Avoidance of precipitating drugs, and broad (fava) beans
- Transfuse in severe haemolysis or symptomatic anaemia
- IV fluids to maintain good urine output
- In infants, exchange transfusion may be required



- Splenectomy may be of value in severe recurrent haemolysis

73. A 10 year old girl presents with pallor and features of renal failure. She has haematuria as well as proteinuria. The serum urea and creat are elevated. These symptoms started after an episode of bloody diarrhoea 4 days ago. What is the SINGLE most likely diagnosis?

- A. Thrombotic thrombocytopenic purpura
- B. Haemolytic uraemic syndrome**
- C. Idiopathic thrombocytopenic purpura
- D. Henoch-Schönlein purpura
- E. Acute renal failure

Most cases of haemolytic uraemic syndrome develop in children after 2 to 14 days of diarrhoea often bloody, due to infection with a certain strain of E. coli. Common features include abdominal pain, fever, features of renal failure like nausea/vomiting can also occur.

Renal function and electrolytes would show a rise in urea and creatinine. This is due to dehydration but, if associated with haemolysis and thrombocytopenia, then it would indicate the onset of HUS.

A brief description:

Henoch-Schönlein purpura (HSP) Vs Haemolytic uraemic syndrome (HUS) Vs Thrombotic thrombocytopenic purpura (TTP)

Henoch-Schönlein Purpura	Haemolytic Uraemic Syndrome	Thrombotic Thrombocytopenic Purpura
Purpura Abdo pain Arthritis Glomerulonephritis Periarticular oedema Features of IgA nephropathy may occur E.g. Haematuria, renal failure	Triad 1. Acute renal failure 2. Microangiopathic haemolytic anaemia (MAHA) 3. Thrombocytopenia	Pentad (Triad of HUS) + 4. Neurological manifestation 5. Fever
Seen in Children	Seen in Children	
Usually follows an Upper respiratory tract infection	Associated with E.Coli	Inhibition of ADAMTS 13 <ul style="list-style-type: none">• ADAMTS 13 is responsible for breakdown of VWF. Without ADAMTS13, coagulation occurs.



	<p>Haemolytic uraemic syndrome (HUS)</p> <p>HUS consists of a triad of haemolytic anaemia, uraemia, and thrombocytopenia.</p> <p>The anaemia will be intravascular in nature and will have an abnormal blood smear showing schistocytes, helmet cells, and fragmented red cells.</p> <p>LDH and reticulocyte count will be elevated and the haptoglobin decreased.</p> <p>90% are caused by E. coli strain O157. This produces a verotoxin that attacks endothelial cells. Occurs after eating undercooked contaminated meat.</p> <p>Signs and Symptoms:</p> <p>The classical presenting feature is profuse diarrhoea that turns bloody 1 to 3 days later. It is rare for the diarrhoea to have been bloody from the outset. About 80-90% of children from whom the organism is isolated will develop blood in the stool. It is usually at this stage that they are admitted to hospital.</p> <p>Most adults infected with E. coli O157 remain asymptomatic.</p> <p>There is often fever, abdominal pain and vomiting</p> <p>Management</p> <ul style="list-style-type: none">• Treatment is supportive e.g. Fluids, blood transfusion and dialysis if required• Do not give antibiotics to those with possible HUS. The organism may release more toxins as it dies if antibiotics are given and may worsen the disease.• The indications for plasma exchange in HUS are complicated. As a general rule plasma exchange is reserved for severe cases of HUS not associated with diarrhoea
74.	<p>A 55 year old man complains of fatigue. A blood test shows:</p> <p>Haemoglobin 82 g/L Mean cell volume 107 fL</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Folate Deficiency B. Thalassemia minor C. Iron deficiency anaemia D. Anaemia of chronic disease E. Sickle cell anaemia</p> <p>The best option above is folate deficiency as it is a macrocytic anaemia. (High MCV).</p> <p>Folate Deficiency</p>



	<p>Folate deficiency represents the other main deficiency cause of megaloblastic anaemia. (The other main deficiency is B12 deficiency).</p> <p>Megaloblastic anaemias are a heterogeneous group of disorders sharing common morphological characteristics. Erythrocytes are larger and have higher nuclear-to-cytoplasmic ratios compared to normoblastic cells. Neutrophils can be hypersegmented and megakaryocytes are abnormal.</p> <p>Causes:</p> <p><u>Dietary deficiency</u></p> <ul style="list-style-type: none">• Malabsorption (eg, coeliac disease, jejunal resection, inflammatory bowel disease).• Poor intake• Alcohol excess (also causes impaired utilisation) <p><u>Antifolate drugs</u></p> <p>Example: Sulfasalazine, methotrexate</p> <p>Diagnosis:</p> <p>The haematological features indistinguishable from those of B12 deficiency (macrocytic, megaloblastic anaemia). Distinction is on basis of demonstration of reduced red cell and serum folate. Vitamin B12 levels should be assessed at the same time due to the close relationship in metabolism.</p> <p><i>In PLAB, one distinction that may help you choose between B12 and folate deficiency is the diet. Good food sources of folate include broccoli, brussels sprouts, asparagus, peas (basically vegetables). Thus if the given scenario is a vegetarian, it is unlikely that he is suffering from folate deficiency. In that case, pick B12 deficiency.</i></p> <p>Management:</p> <p>Folic acid 5 mg/d PO for 4 months.</p> <p>Note: It is important in a patient who is also deficient in both vitamin B12 and folic acid to treat the B12 deficiency first to avoid precipitating subacute combined degeneration of the cord. Once the vitamin B12 levels are normal, then start oral folic acid.</p>
75.	<p>A 55 year old HIV positive man presents with painless peripheral lymphadenopathy, fever, night sweats and weight loss. Abdominal examination reveals a enlarged spleen. What is the SINGLE most likely diagnosis?</p> <p>A. Hodgkin's lymphoma</p> <p>B. Non-Hodgkin lymphoma</p> <p>C. Acute lymphoblastic leukaemia (ALL)</p> <p>D. Acute myeloid leukaemia (AML)</p> <p>E. Chronic myeloid leukaemia (CML)</p>



	<p>Although both Hodgkin's and Non-Hodgkin's lymphoma present in similar ways with lymphadenopathy, night sweats, fever, weight loss, non-Hodgkin's is more associated with HIV than Hodgkin's disease. Non-Hodgkin's lymphoma (NHL) is known as AIDS-related lymphoma.</p> <p>The most prevalent of the HIV-related lymphomas is diffuse large B-cell non-Hodgkin's lymphoma, followed by Burkitt's lymphoma.</p> <p>Although not considered an AIDS-defining illness, Hodgkin's lymphoma is increasing in incidence in those with HIV infection and would be considered an answer to this question if NHL was not present as one of the answers.</p> <p>There is a with a clear correlation between the degree of immunosuppression and the risk of developing NHL. The pathogenesis is rather the immunosuppression rather than the HIV itself.</p>
76.	<p>A 47 year old man who is on warfarin therapy is due for a hemicolectomy. He is on warfarin for recurrent pulmonary embolism. What advice would you give him prior to his surgery?</p> <p>A. Continue with warfarin B. Continue with warfarin and add heparin C. Stop warfarin and start aspirin D. Stop warfarin and start heparin E. Stop warfarin</p> <p>Warfarin should always be stopped 5 days before planned surgery. Heparin is used instead of warfarin prior to surgery in patients with intermediate to high risk of thromboembolism, recent TIA or patients with mechanical cardiac valves.</p> <p>Surgery and Warfarin</p> <p>If the person needs to have surgery or any other invasive procedure, they may need to temporarily stop taking warfarin.</p> <p>Surgery — in general, warfarin is usually stopped 5 days before planned surgery, and once the person's international normalized ratio (INR) is less than 1.5 surgery can go ahead.</p> <p>Warfarin is usually resumed at the normal dose on the evening of surgery or the next day if haemostasis is adequate.</p> <p><i>(In practice, you would need to adhere to local guidelines in Perioperative Bridging of Warfarin in Adult Patients Undergoing Elective Surgery). See example of local guidelines of guys and st thomas.)</i></p>



77.	<p>A 45 year old man presents with a lump in the posterior triangle of his neck. It has been growing for the past few months. He also complains of having drenching night sweats, unexplained fever and weight loss. Lymph nodes are palpable at the supraclavicular region. What is the SINGLE most likely diagnosis?</p> <p>A. Tuberculosis B. Lymphoma C. Lipoma D. Reactive lymph nodes E. Virchow's nodes</p> <p>This is quite the classical presentation of lymphoma.</p> <ul style="list-style-type: none">• Drenching night sweats, fever, weight loss• Enlarged but otherwise asymptomatic lymph node, typically in the lower neck or supraclavicular region• Occasionally, findings on examination may reveal hepatomegaly or splenomegaly. <p>In this question thankfully you do not need to differentiate between Hodgkin's and non-Hodgkin's.</p>
78.	<p>A 40 year old man has a mild fever and feels generally tired. He has marked weight loss over the last 6 months and has a bilateral white, vertically corrugated lesion on the lateral surfaces of the tongue. What is the SINGLE most likely diagnosis?</p> <p>A. C1 esterase deficiency B. Crohn's disease C. HIV disease D. Sarcoidosis E. Sjogren's syndrome</p> <p>The white, vertical lesion described is called hairy leukoplakia which occurs primarily in HIV-positive individuals.</p> <p>Hairy leukoplakia Hairy leukoplakia is a condition that is characterised by irregular white patches on the side of the tongue and occasionally elsewhere on the tongue or in the mouth. It is a form of leukoplakia, which refers to white patches on the mucous membranes of the mouth often arising in response to chronic irritation. Hairy leukoplakia occurs primarily in HIV-positive individuals.</p> <p>This white lesion cannot be scraped off. The lesion itself is benign and does not require any treatment.</p>



79.	<p>A 51 year old man complains of pruritus and fatigue. A full blood count was done and the following was reported:</p> <p>Haemoglobin 197 g/L White cell count $13 \times 10^9/L$ Platelets $487 \times 10^9/L$</p> <p>JAK2 mutation was found to be positive. What is the SINGLE most likely diagnosis?</p> <p>A. Polycythaemia rubra vera (PRV) B. Myelofibrosis C. Acute myeloid leukaemia (AML) D. Chronic myeloid leukaemia (CML) E. Chronic lymphocytic leukaemia (CLL)</p> <p>The signs and symptoms are consistent with polycythaemia rubra vera (PRV)</p> <p>About a third of patients with PRV present with symptoms due to thrombosis. This includes DVT like in this question.</p> <p>PCV is usually associated with a low serum level of the hormone erythropoietin (EPO).</p>
80.	<p>A 39 year old pregnant woman who is 36 week gestation has acute abdominal pain and is rushed for immediate C-section. Her blood pressure was reported to be 110/60 mmHg. Her blood tests show:</p> <p>Haemoglobin 101 g/L White cell count $9.8 \times 10^9/L$ Platelets $60 \times 10^9/L$ Activated partial thromboplastin time 61 seconds Prothrombin time 29 seconds Fibrinogen 0.6 g/L Bilirubin $22 \mu\text{mol/L}$</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Pregnancy induced hypertension B. Disseminated intravascular coagulation C. HELLP syndrome D. Acute fatty liver E. Obstetric cholestasis</p> <p>Acute abdominal pain may indicate concealed abruptio placentae which may be a cause of disseminated intravascular coagulation.</p>



The two top choices here are HELLP syndrome and disseminated intravascular coagulation (DIC). It is important to understand that HELLP syndrome may lead to disseminated intravascular coagulation. But the more specific answer in this question is DIC because in HELLP syndrome, the prothrombin time, activated partial thromboplastin time and serum fibrinogen levels are normal but are prolonged in DIC.

Bilirubin levels may be higher than normal due to bilirubin production secondary to haemolysis.

- 81.** A 26 year old businessman travelled from New York to the U.K. He presented to A&E three weeks later complaining of drenching night sweats, fever and lymphadenopathy in the neck since returning from his business trip. What is the SINGLE most likely diagnosis?

- A. Tuberculosis
- B. Lymphoma**
- C. Aplastic anaemia
- D. Hereditary Spherocytosis
- E. Infectious mononucleosis

The two main contenders for an answer to this question are tuberculosis and lymphoma.

Tuberculosis is improbable because New York City (USA) is not a tuberculosis prone area. The main TB prone areas that you have to take note of for the PLAB exam is a patient travelling to or from South Asia or sub-Saharan Africa.

While it is true that the signs and symptoms of tuberculosis and lymphoma are very similar, the following table makes it easy to differentiate between tuberculosis and lymphoma if you are having difficulty choosing either as an answer:

TUBERCULOSIS	LYMPHOMA
Fatigue, malaise, fever, weight loss, anorexia	Drenching night sweats, fever, weight loss
Hilar, paratracheal or superficial node involvement. Palpable nodes may be initially tender, firm and discrete	Enlarged but otherwise asymptomatic lymph node, typically in the lower neck or supraclavicular region
Chronic, productive cough with purulent \pm bloodstained sputum	Patients might complain of chest discomfort with a cough or dyspnoea
May result in lobar collapse, bronchiectasis, pleural effusion and pneumonia	Mediastinal masses are frequent and are sometimes discovered on a routine CXR
Erythema nodosum	Findings on examination include lymphadenopathy, hepatomegaly, splenomegaly, and superior vena cava syndrome



82.	<p>A 32 year old man presents with fatigue, weakness, weight loss. On examination, cervical lymphadenopathy and splenomegaly is noted. What is the SINGLE most likely diagnosis?</p> <p>A. Haemophilus influenzae infection B. Streptococcal infection C. Toxoplasmosis D. Non-Hodgkin lymphoma E. Pneumocystis infection</p> <p>There are two major points mentioned here: cervical lymphadenopathy and splenomegaly.</p> <p>This combination makes Non-Hodgkin lymphoma as the most likely cause.</p> <p>Toxoplasmosis although uncommon, may have cervical lymphadenopathy and splenomegaly as well. But weight loss is not seen in toxoplasmosis hence non-hodgkin's lymphoma remains the top choice.</p> <p>Non-Hodgkin lymphoma</p> <p>This includes all lymphomas without Reed-Sternberg cells</p> <p>Most are derived from B-cell lines; diffuse large B-cell lymphoma (DLBCL) is commonest.</p> <p>Common Signs and Symptoms</p> <ul style="list-style-type: none">• Painless, slowly progressive peripheral lymphadenopathy is the most common clinical presentation• Primary extranodal involvement and systemic symptoms (fatigue, weakness, fever, night sweats, weight loss) are not common at presentation but are common in patients with advanced or end-stage disease. Note: fever, night sweats, weight loss are less common than in Hodgkin's lymphoma, and indicates disseminated disease• Bone marrow is frequently involved and may be associated with pancytopenia - anaemia, infection, bleeding (platelets).• Splenomegaly• Hepatomegaly
83.	<p>A 16 year old boy presents with rash on his buttocks and extensor surface following a sore throat. He complains of joint stiffness and pain. What is the SINGLE most probable diagnosis?</p> <p>A. Measles B. Bullous-pemphigoid C. Rubella D. Idiopathic thrombocytopenic purpura (ITP) E. Henoch-Schönlein purpura (HSP)</p>



	<p>In HSP, the purpuric rash is typically found over buttocks and extensor surfaces of arms and legs.</p> <p>Henoch-Schönlein purpura (HSP)</p> <p>Presentation:</p> <ul style="list-style-type: none">• Purpura (non-blanching) over buttocks and extensor surfaces• Arthralgia (especially in the knees and ankles)• Abdominal pain <p>Diagnosis:</p> <ul style="list-style-type: none">• Mainly a clinical diagnosis• Look for elevated ESR, IgA• Raised creatinine ; labs consistent with nephropathy <p>Treatment:</p> <ul style="list-style-type: none">• Self-limiting; conservative management• NSAIDs for arthralgic pain → beware of choosing this option if case stem has impaired renal involvement!• Corticosteroids can improve associated arthralgia and the symptoms associated with gastrointestinal dysfunction
84.	<p>A 45 year old man presents fatigue. He is otherwise asymptomatic. Blood report shows the following:</p> <p>Haemoglobin 82 g/L White cell count 132 x 10⁹/L Platelets 550 x 10⁹/L</p> <p>There was an increased number of neutrophils, basophils, eosinophils. Peripheral blood smear shows all stages of maturation. What is the SINGLE most likely diagnosis?</p> <p>A. Acute lymphoblastic leukaemia (ALL) B. Acute myeloid leukaemia (AML) C. Chronic myeloid leukaemia (CML) D. Chronic lymphocytic leukaemia (CLL) E. Lymphoma</p> <p>Anaemia, raised WBC count are known features of Chronic myeloid leukaemia (CML).</p> <p>Myeloid cells include neutrophils, basophils, eosinophils, erythrocytes, and platelets. An increased number of neutrophils, basophils, eosinophils are consistent with CML.</p> <p>Note that platelets can be low, normal or raised in CML.</p> <p>Chronic myeloid leukaemia (CML)</p>



CML is a clonal bone marrow stem cell disorder in which a proliferation of **mature granulocytes** (neutrophils, eosinophils and basophils) and their precursors is found.

CML typically progresses through three stages:

1. Chronic phase

The immune system is competent and patients are asymptomatic for prolonged periods - (typically 4-5 years) More than 90% of patients are diagnosed in the initial chronic phase.

2. Accelerated phase

In about two thirds of patients, the chronic phase transforms into an accelerated phase characterised by a moderate increase in blast cells, increasing anaemia or thrombocytopenia.

3. Blast crisis or blastic phase

After a variable amount of time (usually months) the accelerated phase progresses to acute blastic transformation. Features of blastic phase include bone marrow or peripheral blasts $\geq 30\%$, severe constitutional symptoms due to tumour burden (weight loss, fever, night sweats, bone pain), infection and bleeding

Clinical Presentation

Usually presents at age 40 to 50 years old (middle-age)

85-90% of patients are diagnosed in the chronic phase and in recent years about 40% of patients have been diagnosed before any symptoms developed, with incidental abnormalities spotted on a blood test.

- Fatigue (due to anaemia)
- Weight loss
- Night sweats
- Abdominal discomfort → from massive enlargement of spleen (this is common)
- Splenomegaly → this is the most common physical finding, which may extend towards the right iliac fossa (Seen in $>75\%$)
- Hepatomegaly
- Enlarged lymph nodes (rare)
- Low grade fever
- Gout due to rapid cell turnover

Note: Enlarged lymph nodes are rare and infection are uncommon because these white cells retain the majority of their function

Investigations at presentation

- FBC:
 - Leukocytosis is common (often $>100 \times 10^9/L$)
 - Differential shows granulocytes at all stages of development (increased numbers of neutrophils, myelocytes, basophils, eosinophils)
 - Platelets may be elevated, decreased or normal levels
 - A mild-to-moderate, usually normochromic and normocytic, anaemia is common
- Peripheral blood smear - all stages of maturation seen



	<ul style="list-style-type: none">Biochemistry - U&Es are usually normal at presentation, lactate dehydrogenase is usually raised, serum urate may be raised.Bone marrow aspiration and biopsy are essential to quantify the percentage of blasts and basophils, to assess the degree of fibrosis and to obtain material for cytogenetic-molecular analyses.Cytogenetics - the characteristic feature in CML is the Ph chromosome, found in about 90% of cases. (oxford says > 80%). This can be found on cytogenetic analysis of blood or bone marrow. <p>Take home notes:</p> <ul style="list-style-type: none"><i>The main feature of the disease is an elevated white blood cell count consisting predominantly of neutrophils. Blasts are either absent or present in very small amounts.</i><i>The Philadelphia chromosome is present in more than 90% of patients with chronic myeloid leukaemia (CML).</i><i>In PLAB, look for the massive enlargement of spleen</i>
85.	<p>A 5 year old child presents with fever and pallor. His parents say he always feels tired and is not as active as the other children around his age. On examination, splenomegaly was noted. Blood results show:</p> <p>Hb 7 g/dl WCC $2 \times 10^9/L$ Platelets $42 \times 10^9/L$</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Acute myeloid leukaemia B. Acute lymphoblastic leukaemia C. Chronic myeloid leukaemia D. Chronic lymphocytic leukaemia E. Hodgkin's lymphoma</p>
86.	<p>A 54 year old man has fatigue. A recent blood report shows the following:</p> <p>Haemoglobin 90 g/L Mean cell volume 70 fL Mean cell haemoglobin concentration 290 g/L Serum ferritin 9 $\mu g/L$ Total iron-binding capacity 75 $\mu mol/L$</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Thalassaemia trait B. Hypoparathyroidism C. Hereditary sideroblastic anaemia D. Anaemia of chronic disease E. Iron deficiency anaemia</p>



Iron-deficiency anaemia

Aetiology

- Blood loss from the gastrointestinal (GI) tract is the most common cause of iron-deficiency anaemia in adult men and postmenopausal women
- Blood loss due to menorrhagia is the most common cause of iron deficiency in premenopausal women
- In tropical countries, infestation of the gut may cause iron-deficiency anaemia, especially with hookworm and schistosomiasis
- *Common causes of blood loss include:*
 - Non-steroidal anti-inflammatory drug (NSAID) use
 - Colonic carcinoma
 - Gastric carcinoma
 - Gastric or duodenal ulceration
- Dietary inadequacy
- Failure of iron absorption: Malabsorption conditions such as coeliac disease
- Excessive requirements for iron: Pregnancy

Laboratory tests

- Low Haemoglobin
- Low Mean cell volume (MCV)
- Low Mean cell haemoglobin concentration (MCHC)
- High Red cell distribution width (RDW)
- Low serum ferritin
- High Total iron-binding capacity

The above laboratory test are important to remember for PLAB as they may be asked

- 87.** A 59 year old smoker who recently underwent a hip replacement surgery 2 days ago, has a swollen and tender left leg. The diameter of his left calf is higher than the right calf. Passive movements cause pain. The calf is tender to touch. What is the SINGLE most likely diagnosis?

A. Deep vein thrombosis

B. Lymphoedema

C. Peripheral vascular disease

D. Cellulitis

E. Superficial thrombophlebitis

One calf having a larger diameter than the other is one of the known signs of a DVT. The risk factors (smoker, immobile, major surgery) that are given also point clearly towards the likely diagnosis of deep vein thrombosis.



88. A 28 year old man has sudden onset of bone pain. He also begins experiencing bleeding from his gums. Looking retrospectively, he notes a decreased energy level over past weeks. He feels dizzy and has dyspnoea on exertion. He looks pale and has numerous ecchymoses is seen over his body. Hepatosplenomegaly is noted. A full blood count shows WBC of $102 \times 10^9/L$. A bone marrow biopsy shows numerous blasts. What is the SINGLE most likely diagnosis?

- A. Mantle cell lymphoma
- B. Infectious lymphocytosis
- C. Waldenstrom's macroglobulinemia
- D. Acute myeloid leukaemia (AML)**
- E. Acute lymphoblastic leukaemia (ALL)

This is actually an acute emergency. The leucocytosis is causing the bone pain. Bleeding from the gum is commonly seen in acute myeloid leukaemia (AML). *Note that gum bleeding can also be seen in ALL.*

AML is the most common acute leukaemia in adults. Thus, majority of the acute leukaemia in children questions asked in the PLAB test would be acute lymphoblastic leukaemia (ALL) and not acute myeloid leukaemia (AML).

One needs to be careful with picking AML or ALL as there are often questions with a very similar stem. In reality, it is difficult to diagnose them clinically as well. Flow cytometry (immunophenotyping) is used to help distinguish AML from acute lymphocytic leukemia (ALL).

Acute myeloid leukaemia (AML)

This neoplastic proliferation of blast cells is derived from marrow myeloid elements. It progresses rapidly (death in about 2 months if untreated)

Children or young adults may present with acute symptoms over a few days to a few weeks.

Most AML subtypes show more than 30% blasts of a myeloid lineage in the blood, bone marrow, or both.

Presentation:

- Fatigue, pallor, dizziness and shortness of breath on exertion (symptoms of anaemia)
- Bleeding caused by thrombocytopenia. Thrombocytopenia often causes petechiae on the lower limbs. DIC may aggravate the situation and cause larger lesions
- Infection
- Gingivitis is common, with swollen, bleeding gums
- There can also be bone pain
- Hepatomegaly and splenomegaly may be found. Lymphadenopathy is less common.

Investigations

- FBC:
 - Total WBC count is often high. However, it may also be normal or even low
 - Neutrophils are usually depleted and blast cells are seen in their place



	<ul style="list-style-type: none">Bone marrow aspiration is the diagnostic procedure. (The WHO classification requires more than 20% blasts in the peripheral blood, to make a diagnosis of AML)
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SAMPLE



SAMPLE



GENETICS

SAMPLE



1.	<p>A 4 year old child has progressive muscle weakness and frequent falls. He has a waddling gait when he attempts to run. He is unable to hop or jump. His motor milestones seemed to be delayed. What is the SINGLE most likely diagnosis?</p> <p>A. Duchenne muscular dystrophy B. Becker's muscular dystrophy C. Polymyositis D. Lambert-Eaton syndrome E. Polymyalgia rheumatic</p> <p>Duchenne muscular dystrophy is an X-linked recessive condition which presents in early childhood and inevitably progresses. Some carriers also have symptoms. New mutations are common in DMD; this means that female relatives of a child with DMD are not necessarily carriers of the gene.</p> <p>Becker's muscular dystrophy (BMD) is similar to the more common muscular dystrophy - Duchenne muscular dystrophy (DMD) - but the clinical course is milder. As with DMD, there is muscle wasting and weakness which is mainly proximal. Generally, walking difficulties begin after the age of 16 in Becker's muscular dystrophy. Thus the most appropriate answer here is Duchenne's muscular dystrophy.</p> <p>Duchenne muscular dystrophy Presentation:</p> <ul style="list-style-type: none">- PLAB 1 setting: boy comes into clinic by age 4-5 years- Delayed motor milestone: walking at > 18 months, can't hold objects- Inability to run - waddling gait when attempting to do so.- Gower's sign, proximal muscle weakness- +/- Respiratory or cardiac signs/symptoms- Elevated creatine kinase, AST, ALT <p>Diagnosis:</p> <ul style="list-style-type: none">- Creatine kinase - initial → (CK levels are very high (10-100 x normal from birth).- Blood sample and muscle biopsy → genetic testing for dystrophin mutations → PCR- Neuromuscular assessment → diagnosis severity and determine management- Genetic testing after a positive biopsy diagnosis of DMD is mandatory
2.	<p>A 7 year old boy is brought by his mother to the GP clinic with another chest infection. He has had multiple respiratory infections in the past. On examination, he is noted to be below the 5th percentile for weight and height. He is also noted to have greasy stools. What is the SINGLE most likely diagnosis?</p> <p>A. Cystic Fibrosis B. Severe combined immunodeficiency C. Primary T cell immunodeficiency D. Primary B cell immunodeficiency E. Malabsorption</p>



	<p>Cystic fibrosis</p> <p>Clinical presentation</p> <ul style="list-style-type: none">- Recurrent chest infections (Cough and chronic sputum production)- Malabsorption → Leading to:<ul style="list-style-type: none">o Frequent, bulky, greasy stools (Steatorrhoea)o Failure to thrive- Pancreas → increased incidence of diabetes mellitus- Delayed sexual development- Male infertility, female subfertility- Salty taste of skin- Short stature- Meconium ileus (in neonatal period) <p>Diagnosis</p> <ul style="list-style-type: none">- Usually diagnosed with CF as neonates or as children- Diagnosis involves:<ul style="list-style-type: none">o Sweat test positiveo Molecular genetic testing for CFTR gene
3.	<p>An 8 year old boy is clinically obese. As a baby he was floppy and difficult to feed. He now has learning difficulties and is constantly eating despite measures by his parents to hide food out of his reach. What is the SINGLE most likely diagnosis?</p> <p>A. Cushing's syndrome B. Congenital hypothyroidism C. Prader Willi syndrome D. Laurence moon biedl syndrom E. Down's syndrome</p> <p>Prader Willi syndrome rare congenital disorder characterized by learning difficulties, growth abnormalities, and obsessive eating, caused mostly by deletion of the paternally inherited chromosomal 15q11.2-q13 region.</p> <p>Prader-Willi syndrome (PWS)</p> <ul style="list-style-type: none">- The striking feature of PWS is massive hyperphagia with associated compulsive food-seeking, and consequent marked obesity. <p>Clinical features</p> <ul style="list-style-type: none">- Neonates: hypotonia, sleepiness, unresponsiveness, narrow bifrontal diameter, triangular mouth (feeding difficulties and swallowing problems), strabismus, acromicria (shortness of extremities)- Childhood/adolescence: short stature, hypogenitalism, behavioural disorders (overeating and obesity, self-injurious behaviour).- Associated features: Small hands and feet, cleft palate, almond-shaped eyes, strabismus, clubfoot, scoliosis.



4.	<p>A 11 year old has increased laxity of joints and hyperelastic skin. He is noted to have mild spinal curvature and a blue sclera. What is the SINGLE most likely diagnosis?</p> <p>A. Fragile X syndrome B. Prader-willi syndrome C. DiGeorge syndrome D. Marfan's syndrome E. Ehlers-Danlos syndrome</p> <p>Ehlers-Danlos syndrome</p> <p>There are many types of EDS based on different gene mutations affecting the structure or assembly of different collagens. Many syndromes overlap and it may be difficult to differentiate one from the other. But not however, they all share common features of:</p> <ul style="list-style-type: none">- Hyperelasticity of skin- Joint hypermobility <p>Those are the only two signs you need to know for your exam for Ehlers-Danlos syndrome</p>
5.	<p>A 44 year old woman presents with memory loss, poor concentration and inability to recognize household objects. She has right-handed involuntary writhing movement which has just recently started. She reports occasional difficulty in walking. There is a strong family history with similar symptoms. What is the SINGLE most likely diagnosis?</p> <p>A. Friedreich's ataxia B. Wilson's disease C. Huntington's disease D. Motor neuron disease E. Charcot-Marie-Tooth disease</p> <p>The right-handed involuntary writhing movements are called chorea. These are uncontrollable limb movements. Cognitive abilities are progressively impaired in Huntington's which explains the memory loss, poor concentration and the inability to recognize household objects. A general lack of coordination and an unsteady gait often follow. The final clue is the strong family history. Huntington's disease is an autosomal-dominant disorder. One can imagine either her father or mother with this disorder.</p> <p>Huntington's disease</p> <ul style="list-style-type: none">- Huntington's disease (HD) is an autosomal-dominant, progressive neurodegenerative disorder with a distinct phenotype <p>Presentation</p> <ul style="list-style-type: none">- Typically, onset of symptoms at middle age- Early signs may be personality change, self-neglect and clumsiness- Incoordination- Cognitive decline



	<ul style="list-style-type: none">- Behavioural difficulties- Later → Chorea, dystonia, rigidity and dementia
6.	<p>A 59 year old man has shown a change in his mood and personality over a 9 month period. He has subsequently developed difficulty with memory and concentration, and then progressive fidgety movements of his limbs and facial musculature. By the time of medical assessment he has frank choreiform movements and a mini-mental state exam of 21/30. He was adopted and therefore no information on his family history is available. He has 3 adult children (27, 30, 33) of whom the 2 youngest are asymptomatic. However, the oldest son has recently been investigated by the neurology department for slightly erratic behavior and fidgety restless movements of both legs. Based on the likely clinical diagnosis, what is the SINGLE most likely mode of inheritance?</p> <p>A. Autosomal dominant inheritance with anticipation B. Autosomal dominant with variable penetrance C. Autosomal recessive D. X-linked E. Mitochondrial disorder</p> <p>This patient is suffering from Huntington's disease. It is an autosomal dominant disorder with anticipation. The term “anticipation” is a phenomenon whereby as the genetic disorder is passed on to the next generation, the symptoms of the genetic disorder become apparent at an earlier age. This occurs in each generation whereby the symptoms would appear earlier and earlier.</p> <p>Huntington's disease</p> <ul style="list-style-type: none">- Huntington's disease (HD) is an autosomal-dominant, progressive neurodegenerative disorder with a distinct phenotype <p>Presentation</p> <ul style="list-style-type: none">- Typically, onset of symptoms at middle age- Early signs may be personality change, self-neglect and clumsiness- Incoordination- Cognitive decline- Behavioural difficulties- Later → Chorea, dystonia, rigidity and dementia



7.	<p>A 30 year old man and wife presents to the reproductive endocrine clinic as they have been trying to conceive for the last 3 years. They have intercourse 3 times a week and do not use contraception. The man is tall and has bilateral gynecomastia. Examination of the testes reveals bilateral small, firm testes. Which is the SINGLE best investigation that could lead to a diagnosis?</p> <p>A. Computed tomography scan of the pituitary gland B. Chromosomal analysis C. Serum gonadotropin levels D. Serum testosterone levels E. Follicle-stimulating hormone (FSH) and luteinising hormone (LH) levels</p> <p>Many with known Klinefelter's syndrome are not diagnosed until they are adults. The SINGLE best test that confirms diagnosis is a chromosomal analysis. In this question, attending a reproductive endocrine clinic and trying to conceive for the last 3 years is a hint telling you about his infertility.</p> <p>Klinefelter's syndrome (XXY)</p> <p>Findings</p> <ul style="list-style-type: none">- Mental retardation (average IQ 85-90)- Behavioral problems- Long limbs (decreased upper:lower segment ratio)- Tall and slim- Hypogonadism- Infertility- Gynecomastia
8.	<p>A 5 year old boy has recurrent chest infections and offensive stool. On physical examination, he has finger clubbing. What is the SINGLE most appropriate initial investigation?</p> <p>A. Endomysial antibody (IgA) B. Sweat test C. Barium meal D. anti-gliadin antibody (IgA or IgG) E. Glucose tolerance test</p> <p>Sweat testing confirms the diagnosis and is 98% sensitive.</p> <p>Cystic fibrosis</p> <p>Clinical presentation</p> <ul style="list-style-type: none">- Recurrent chest infections (Cough and chronic sputum production)- Malabsorption → Leading to:<ul style="list-style-type: none">o Frequent, bulky, greasy stools (Steatorrhea)o Failure to thrive- Pancreas → increased incidence of diabetes mellitus



	<ul style="list-style-type: none">- Delayed sexual development- Male infertility, female subfertility- Salty taste of skin- Short stature- Meconium ileus (in neonatal period) <p>Diagnosis</p> <ul style="list-style-type: none">- Usually diagnosed with CF as neonates or as children- Diagnosis involves:<ul style="list-style-type: none">o Sweat test positiveo Molecular genetic testing for CFTR gene
9.	<p>A 4 year old boy presents to clinic after an incidental finding of elevated creatine kinase. The mother gives a history of the boy walking at 18 months and sluggish when he runs, climbs stairs, rising from a sitting position, or riding his tricycle. Compared to his older sister at the same age, he has difficulty holding onto small objects. What is the SINGLE most likely diagnosis?</p> <p>A. Duchenne muscular dystrophy B. Becker's muscular dystrophy C. Myotonic muscular dystrophy D. Spinal muscular atrophy type 1 E. Lambert-Eaton syndrome</p> <p>SAMPLE</p> <p>This is a classic presentation of Duchenne muscular dystrophy. The stem would usually present with a pre-school boy and a history of abnormal gait. Clues: "rising from a sitting position" (Gower's sign), hypertrophic calf muscles, and elevated creatine kinase. The presentation of Becker's has an onset of around 10 years old or presenting with a young man who is unable to walk. Myotonic muscular dystrophy presents at birth with multi-system complications as with spinal muscular atrophy type 1. With option E, symptoms would be similar to Duchenne's but the proximal muscle weakness would improve with exercise and usually is associated with a tumour of the lung.</p> <p>Duchenne muscular dystrophy Presentation:</p> <ul style="list-style-type: none">- PLAB 1 setting: boy comes into clinic by age 4-5 years- Delayed motor milestone: walking at > 18 months, can't hold objects- Inability to run - waddling gait when attempting to do so.- Gower's sign, proximal muscle weakness- +/- Respiratory or cardiac signs/symptoms- Elevated creatine kinase, AST, ALT <p>Diagnosis:</p> <ul style="list-style-type: none">- Creatine kinase - initial → (CK levels are very high (10-100 x normal from birth).- Blood sample and muscle biopsy → genetic testing for dystrophin mutations → PCR- Neuromuscular assessment → diagnosis severity and determine management



	<p>- Genetic testing after a positive biopsy diagnosis of DMD is mandatory</p>
10.	<p>A mother has a child with 17-alpha-hydroxylase deficiency. She is now pregnant for the second time. What are the risks of her unborn child having congenital adrenal hyperplasia?</p> <p>A. 1:1 B. 1:2 C. 1:4 D. 1:8 E. 2:3</p> <p>Unfortunately this is not the type of question that you can figure out using logic. You need to learn that Congenital Adrenal Hyperplasia is an autosomal recessive genetic disorder. This means that in order for a child to have the condition, both parents need to have the recessive gene. This would result in 25% of offspring being normal, 50% of offspring being carriers and 25% of offspring having the disease in its active form</p> <p>Congenital Adrenal Hyperplasia</p> <p>Congenital adrenal hyperplasia (CAH) describes a group of autosomal recessive disorders of cortisol biosynthesis.</p> <p><u>21-hydroxylase deficiency</u> is the most common and is characterized by cortisol deficiency (with or without aldosterone deficiency) and androgen excess.</p> <p><u>11-beta-hydroxylase deficiency</u> is the second most common and is characterized by aldosterone deficiency which causes salt-wasting) in early infancy and excess hypertension in childhood and adult life</p> <p><u>17-alpha-hydroxylase deficiency</u> is extremely rare and is characterized by hypertrophy of the adrenal cortex. It presents in much the same way as 11-beta-hydroxylase deficiency.</p> <p>It is not really important to know the specifics of the subtypes or the biosynthesis pathways. Just know that CAH is an autosomal recessive disorder.</p>
11.	<p>A 3 year old boy presents with rectal prolapse. He is noted to be below the 5th percentile for weight and height. His mother is also concerned because he has a foul-smelling bulky stool that "floats." She also state that the child has developed a repetitive cough over the last few months. What is the SINGLE most appropriate initial investigation?</p> <p>A. Endomysial antibody (IgA) B. Sweat test C. Barium meal D. anti-gliadin antibody (IgA or IgG) E. Glucose tolerance test</p> <p>Sweat testing confirms the diagnosis and is 98% sensitive. The rectal prolapse is due to bulky stools which is seen in CF.</p> <p>Cystic fibrosis</p>



	<p>Clinical presentation</p> <ul style="list-style-type: none">- Recurrent chest infections (Cough and chronic sputum production)- Malabsorption → Leading to:<ul style="list-style-type: none">o Frequent, bulky, greasy stools (Steatorrhoea)o Failure to thrive- Pancreas → increased incidence of diabetes mellitus- Delayed sexual development- Male infertility, female subfertility- Salty taste of skin- Short stature- Meconium ileus (in neonatal period) <p>Diagnosis</p> <ul style="list-style-type: none">- Usually diagnosed with CF as neonates or as children- Diagnosis involves:<ul style="list-style-type: none">o Sweat test positiveo Molecular genetic testing for CFTR gene
12.	<p>A 33 year old mother of a child with cystic fibrosis is concerned of her next baby also having cystic fibrosis. She is with the same partner and they both are completely healthy. What is the SINGLE most likely probability of their future child having cystic fibrosis?</p> <p>A. 1:2 B. 1:4 C. 1:8 D. 1:1 E. No risk</p> <p>Cystic fibrosis (CF) is an autosomal recessive disorder. This means that the parents of the cystic fibrosis child are carriers.</p> <p>If a child is born to parents who carry the same autosomal recessive change (mutation), the child has a 1 in 4 chance of inheriting the abnormal gene from both parents and developing the disease. The child would have a 50% (1 in 2) chance of inheriting one abnormal gene. This would make him/her a carrier.</p>



13.	<p>A 7 year old male child is brought to the paediatrician's office by his concerned mother. She states that he is unable to climb stairs and that he is being bullied in school as he cannot run with his classmates on the playground. Upon examination, it is noted that he has diminished deep tendon reflexes and hypertrophy of his calf muscles bilaterally. What is the SINGLE most likely diagnosis?</p> <p>A. Duchenne muscular dystrophy B. Guillain Barre Syndrome C. Becker's muscular dystrophy D. Polymyositis E. Motor neurone disease</p> <p>Duchenne muscular dystrophy Presentation:</p> <ul style="list-style-type: none">- PLAB 1 setting: boy comes into clinic by age 4-5 years- Delayed motor milestone: walking at > 18 months, can't hold objects- Inability to run - waddling gait when attempting to do so.- Gower's sign, proximal muscle weakness- +/- Respiratory or cardiac signs/symptoms- Elevated creatine kinase, AST, ALT <p>Diagnosis:</p> <ul style="list-style-type: none">- Creatine kinase - initial → (CK levels are very high (10-100 x normal from birth).- Blood sample and muscle biopsy → genetic testing for dystrophin mutations → PCR- Neuromuscular assessment → diagnosis severity and determine management- Genetic testing after a positive biopsy diagnosis of DMD is mandatory <p>Becker's muscular dystrophy (BMD)</p> <ul style="list-style-type: none">- Is similar to the more common muscular dystrophy - Duchenne muscular dystrophy (DMD) - but the clinical course is milder.- As with DMD, there is muscle wasting and weakness which is mainly proximal.- Generally, walking difficulties begin after the age of 16 in Becker's muscular dystrophy.
14.	<p>A 32 year old female has café au lait spots seen at birth. Axillary freckles started to appear in her childhood. What is the probability of her child having the same condition as she has?</p> <p>A. 1:2 B. 1:4 C. 1:16 D. 3:4 E. No genetic link</p> <p>This lady has neurofibromatosis. The risk of an affected individual with neurofibromatosis type 1 or 2 transmitting the disease to their child is 50%.</p> <p>Neurofibromatosis</p>



	<p>There are two types of neurofibromatosis, NF1 and NF2. Both are inherited in an autosomal dominant fashion</p> <table><tr><th>Type 1</th><th>Type 2</th></tr><tr><td>More common form<ul style="list-style-type: none">- Café-au-lait spots- Axillary/groin freckles- Peripheral neurofibromas- Iris hamartomas (Lisch nodules)- Scoliosis- Association with pheochromocytomas</td><td>A central form with CNS tumours rather than skin lesions<ul style="list-style-type: none">- Bilateral acoustic neuromas- Multiple intracranial schwannomas, meningiomas and ependymomas</td></tr></table>	Type 1	Type 2	More common form <ul style="list-style-type: none">- Café-au-lait spots- Axillary/groin freckles- Peripheral neurofibromas- Iris hamartomas (Lisch nodules)- Scoliosis- Association with pheochromocytomas	A central form with CNS tumours rather than skin lesions <ul style="list-style-type: none">- Bilateral acoustic neuromas- Multiple intracranial schwannomas, meningiomas and ependymomas
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15.	<p>A 44 year old lady who has polycystic kidney disease is concerned because her 38 year old brother recently died of an intracranial insult. She knows he was not hypertensive. What was the SINGLE most likely cause of her brother's death?</p> <p>A. Subdural haematoma B. Subarachnoid haemorrhage C. Cerebral infarct D. Epidural haematoma E. Dehydration</p> <p>The key to answer this question is to look for associations. Cerebral aneurysms are recognized association of polycystic kidney disease. Since polycystic kidney disease has a genetic component, it is safe to assume that the question writers are trying to hint that the brother also has polycystic kidney disease. The most serious possible complication of polycystic kidney disease is a cerebral aneurysm that ruptures. This causes a subarachnoid haemorrhage.</p>				
16.	<p>A 15 year old girl presents with primary amenorrhoea. She has a short stature and a broad chest with widely spaced nipples. What is the SINGLE most likely diagnosis?</p> <p>A. Down's syndrome B. Klinefelter's syndrome C. Fragile X syndrome D. Turner syndrome E. Normal physiological findings</p> <p>Primary amenorrhoea, short stature and a broad chest with widely spaced nipples are features of Turner syndrome.</p> <p>Down's syndrome and Fragile X syndrome do not present with primary amenorrhoea.</p> <p>Klinefelter's syndrome affects males.</p>				



- 17.** A 42 year old woman is 16 week pregnant. She was late in booking her antenatal appointments and missed her first trimester scan. She is extremely worried about an abnormal chromosomal anomaly in her unborn baby as her first child was born with Down Syndrome. What is the SINGLE most definitive investigations at this stage?

A. Amniocentesis

- B. Chorionic Villous Sampling
- C. Parents karyotyping
- D. Transvaginal ultrasound
- E. Preimplantation genetic testing

The most appropriate test at this gestation would be an amniocentesis.

Amniocentesis

Amniocentesis is an invasive, diagnostic antenatal test. It involves taking a sample of amniotic fluid in order to examine fetal cells found in this fluid.

Amniocentesis is an invasive procedure, diagnostic antenatal test involving taking a 20 ml sample of amniotic fluid using a transabdominal needle under ultrasound guidance in order to examine fetal cells found in this fluid. It is offered after screening tests have indicated a high risk of fetal abnormality or in women considered to be at high risk, for example if above 35 years old.

Amniocentesis is usually performed at 16 weeks and the risk of fetal loss is 0.5-1%. The karyotype results typically take 3 weeks.

Conditions which may be diagnosed

- Neural tube defects (raised AFP levels in the amniotic fluid)
- Chromosomal disorders
- Inborn errors of metabolism

Timing of amniocentesis

- Early (between 12 and 14+6 weeks of gestation):
 - o This is not recommended, as it is associated with an increased risk of miscarriage
- Mid-trimester (between 15 and 18 weeks of gestation):
 - o This is the most common time for the procedure.
- Third trimester
 - o May be undertaken for late karyotyping



18. The parents of two children would like to try for another child. Their first child was diagnosed with cystic fibrosis and their second child is healthy. Both the parents are healthy. What is the chances of their next child being a carrier?

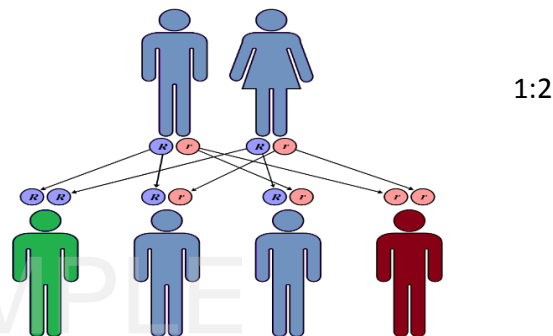
- A. 1:4
B. 1:2
C. 2:3
D. 1:8
E. 1:16

Pay special attention to the final line of the question. In this question they are specifically asking for chances that this boy is a carrier (not an affected child with cystic fibrosis). In other stems and questions, they may ask for the chance that this boy will have the disease.

Both parents here would have to be carriers in order to produce a child with cystic fibrosis as it is an autosomal recessive disease.

Therefore, the chances of having:

- An unaffected child is 1:4
- An unaffected 'carrier' child is
- An affected child is 1:4



19. A 28 year old lady with a family history of cystic fibrosis comes for genetic counselling and wants the earliest possible diagnostic test for cystic fibrosis for the baby she is planning. She is planning to get pregnant in the near future and she is not in favor of termination. What is the SINGLE most appropriate test to recommend?

- A. Chorionic villous sampling
B. Amniocentesis
C. Preimplantation genetic diagnosis
D. Chromosomal karyotyping
E. Non-invasive prenatal testing

This women is not yet pregnant but planning for pregnancy. The earliest possible diagnostic test for cystic fibrosis is a pre-implantation genetic diagnosis (PGD). Preimplantation genetic diagnosis (PGD) is a procedure used prior to implantation to help identify genetic defects within embryos created through in vitro fertilization to prevent certain diseases or disorders from being passed on to the child. The process helps potential parents prevent the birth of a child with a serious genetic condition. Specialist occasionally recommend these test if a woman has a family history of a serious genetic condition (e.g. cystic fibrosis).



20.	<p>A 26 year old tall and slender man and his wife has been trying to conceive for the past 3 years. He has been investigated for primary infertility and his recent semen analysis is consistent with azoospermia. What is the SINGLE most appropriate investigations to be performed?</p> <p>A. Testosterone B. Luteinising hormone (LH) C. Follicle-stimulating hormone (FSH) D. Estradiol E. Karyotyping</p> <p>The likely diagnosis is Klinefelter's syndrome. While it is true that serum testosterone is low or low normal and FSH and LH are elevated (FSH > LH) in Klinefelter's syndrome, the diagnosis is confirmed by chromosomal analysis. The most common indications for karyotyping are hypogonadism and infertility.</p> <p>Many with known Klinefelter's syndrome are not diagnosed until they are adults. The SINGLE best test that confirms diagnosis is a chromosomal analysis.</p> <p>Klinefelter's syndrome (XXY)</p> <p>Findings</p> <ul style="list-style-type: none">- Mental retardation (average IQ 85-90)- Behavioral problems- Long limbs (decreased upper:lower segment ratio)- Tall and slim- Hypogonadism- Infertility- Gynecomastia
21.	<p>A patient who presents with bilateral cerebellopontine tumors, bilateral sensorineural hearing loss and café au lait spots is pregnant. What are the chances of her child having the same condition?</p> <p>A. 1:1 B. 1:2 C. 1:4 D. 3:4 E. 1:8</p> <p>In order to work out probability of inheritance, you need to know the disease in question. This woman has neurofibromatosis. Neurofibromatosis is an autosomal dominant condition therefore the chances of this woman's child having the condition is 50% or 1:2.</p> <p>Neurofibromatosis</p> <p>NF is a genetic disorder causing lesions in the skin, nervous system and skeleton. The neurofibromatoses are autosomal dominant genetic disorders that encompass the rare diseases NF1, NF2, and schwannomatosis</p>



Type 1 is the more common form

Type 2 is a central form with CNS tumours rather than skin lesions:

Schwannomatosis is a recently recognized form of neurofibromatosis, characterized by multiple non-cutaneous schwannomas, which is a histologically benign nerve sheath tumour:

UNAFFECTED PARENT (Father)	AFFECTED PARENT (Mother)	
	H	H
	Hh	hh
	H	hh

Diagnostic criteria for NF1

The diagnostic criteria for NF1 require at least two of seven criteria:

1. At least six café-au-lait spots or hyperpigmented macules
2. Axillary or inguinal freckles.
3. Two or more typical neurofibromas or one plexiform neurofibroma.
4. Optic nerve glioma.
5. Two or more iris hamartomas. They are called Lisch nodules and are seen by slit-lamp examination.
6. Sphenoid dysplasia or typical long-bone abnormalities such as arthrosis.
7. Having a first-degree relative with NF1.

Knowing that neurofibromatosis is an autosomal dominant condition is important for PLAB, as is knowing the difference between NF1 and NF2.



SAMPLE



INFECTIONOUS SAMPLE DISEASES



1.	<p>A 3 year old child was treated for bacterial meningitis and has recovered from it. She is now afebrile. What is the SINGLE most appropriate investigation to perform?</p> <p>A. CT scan B. EEG C. Blood culture D. Repeat lumbar puncture E. Hearing test</p> <p>One of the delayed complications of meningitis is decreased hearing, or deafness. Hearing loss may be partial or total. People who have had meningitis will usually have a hearing test after a few weeks to check for any problems</p>
2.	<p>A 7 year old school boy has been diagnosed with meningococcal meningitis. What is the SINGLE most appropriate prophylactic management?</p> <p>A. Prophylactic rifampicin for the family B. Prophylactic IV cefotaxime for family C. Meningococcal vaccine for the family D. Prophylactic benzylpenicillin for family E. No prophylaxis needed</p> <p>Meningococcal Prophylaxis Prevention of secondary case of meningococcal meningitis is with rifampicin or ciprofloxacin. It is usually given to all intimate, household or daycare contacts who have been exposed to the patient within 10 days of onset.</p>
3.	<p>A 35 year old woman has numerous painful blisters and sores on her vulva. She also complains of a flu-like illness with mild fever. What is the SINGLE most appropriate treatment?</p> <p>A. Doxycycline B. Gentamicin C. Penicillin D. Aciclovir E. Interferon</p> <p>The probable diagnosis here is genital herpes. This should be treated with aciclovir.</p> <p>Genital Herpes</p> <ul style="list-style-type: none">• may be asymptomatic or may remain dormant for months or even years. When symptoms occur soon after a person is infected, they tend to be severe. They may start as multiple small blisters that eventually break open and produce raw, painful sores that scab and heal over within a few weeks. The blisters and sores may be accompanied by flu-like symptoms with fever and swollen lymph nodes.• Genital herpes can be a chronic, lifelong infection. Majority of cases are caused by HSV-2 (HSV-1 is taking over).



	<p>Signs: Flu-like prodrome, then grouped vesicles/papules develop around genitals. These burst, and form shallow ulcers.</p> <p>Management: Oral aciclovir. Some patients with frequent exacerbations may benefit from longer term acyclovir</p>
4.	<p>A 36 year old lady with Hodgkin's lymphoma has chemotherapy 8 days ago. She presents with a temperature of 39.5°C and left sided abdominal pain. Her pulse rate is 96 beats/minute. Full blood count was sent and bloods were taken for culture. What is the SINGLE most appropriate next action?</p> <p>A. Wait for results of culture and sensitivity to confirm antibiotic choice B. Wait for results of full blood count to determine further management C. Start oral antibiotics immediately D. Start broad spectrum IV antibiotics immediately E. Start IV fluids only</p> <p>There are clear signs of infection with risk that the patient could be having neutropenic sepsis thus broad spectrum IV antibiotic should be started empirically while waiting for blood reports.</p> <p>There are 2 main reasons neutropenia is seen in lymphoma:</p> <ol style="list-style-type: none">1. Lymphoma in the bone marrow<ul style="list-style-type: none">• If lymphoma cells are in the bone marrow, they take up space that is normally used to produce healthy blood cells which can lead to neutropenia.2. Side effects of treatment<ul style="list-style-type: none">• Although the aim of treatment is to kill the lymphoma cells, a side effect of many types of chemotherapy, and some radiotherapy treatments (eg radiotherapy to the pelvis), is that some healthy cells are also destroyed. This may include blood cells that are developing in the bone marrow.• Depending on the strength of your chemotherapy regimen, neutropenia is most commonly seen 10 to 14 days after chemotherapy <p>Neutropenic sepsis is a potentially fatal complication of anticancer treatment (particularly chemotherapy).</p> <p>Febrile neutropenia is defined as:</p> <ul style="list-style-type: none">• An oral temperature $\geq 38.5^{\circ}\text{C}$ or two consecutive readings of $\geq 38.0^{\circ}\text{C}$ for two hours and• An absolute neutrophil count $\leq 0.5 \times 10^9/\text{L}$ <p>Febrile neutropenia should also be suspected in:</p> <ul style="list-style-type: none">• Recipients of chemotherapy within the last 4 weeks• Recipients of bone marrow transplant within the last year who are febrile



	<ul style="list-style-type: none">• Treat these patients, pending confirmation of neutrophil count, to avoid any delays in antibiotic administration. <p>General Management for Neutropenic Sepsis</p> <ul style="list-style-type: none">• Antibiotics must be started immediately (do not wait for the WBC)• NICE recommend starting empirical antibiotic therapy with piperacillin with tazobactam (Tazocin) immediately• If patient is still febrile and unwell after 48 hours → an alternative antibiotic such as meropenem is often prescribed +/- vancomycin• If patient is not responding after 4-6 days → order investigations for fungal infections, rather than just starting antifungal therapy blindly
5.	<p>A 24 year old man presents with a deep penetrating wound on his foot after having stepped on a nail in a field. The wound is deep. He does not remember if he had tetanus vaccines when he was a child. What is the SINGLE most appropriate management to be given?</p> <p>A. Tetanus immunoglobulins only B. Tetanus immunoglobulins and tetanus vaccine C. Complete course of tetanus vaccine D. Tetanus booster vaccine only E. Antibiotic</p> <p>If uncertain history of previous vaccination and high risk wound (like in this case): Give vaccine and tetanus immunoglobulin (TIG)</p> <p>Tetanus vaccine is currently given in the UK as part of the routine immunisation schedule at:</p> <ul style="list-style-type: none">• 2 months• 3 months• 4 months• 3-5 years• 13-18 years <p>If high-risk wound → Give intramuscular human tetanus immunoglobulin irrespective of whether 5 doses of tetanus vaccine have previously been given</p> <p>If incomplete or unknown vaccination → Give complete course of tetanus vaccine</p> <p>What is considered a high risk wound?</p> <ul style="list-style-type: none">• Wounds contaminated with soil• Compound fractures• Wounds containing foreign bodies• Wounds or burns in people with systemic sepsis



6.	<p>A 68 year old woman has a sudden onset of pain and loss of hearing in her left ear and unsteadiness when walking. There are small lesions visible on her palate and left external auditory meatus. What is the SINGLE most likely diagnosis?</p> <p>A. Acute mastoiditis B. Cholesteatoma C. Herpes zoster infection D. Oropharyngeal malignancy E. Otitis media with effusion</p> <p>Ramsay Hunt syndrome Ramsay Hunt syndrome (herpes zoster oticus) is caused by the reactivation of the varicella zoster virus in the geniculate ganglion of the seventh cranial nerve.</p> <p>Features</p> <ul style="list-style-type: none">• Auricular pain is often the first feature• Facial nerve palsy (ipsilateral facial palsy, loss of taste)• Painful vesicular rash around the ear on the auditory canal• Vertigo and tinnitus• Ipsilateral hearing loss <p>Management</p> <ul style="list-style-type: none">• Oral acyclovir and corticosteroids are usually given• For herpetic neuralgia, give amitriptyline for the pain
7.	<p>A 34 year old man from Zimbabwe is admitted with abdominal pain to the emergency department. An abdominal X-ray reveals bladder calcification and evidence of obstructive uropathy. What is the SINGLE most likely causative organism?</p> <p>A. Schistosoma mansoni B. Sarcoidosis C. Leishmaniasis D. Tuberculosis E. Schistosoma haematobium</p> <p>Bladder involvement is caused by Schistosoma haematobium while Schistosoma mansoni is mainly responsible for intestinal forms of disease.</p> <p>Urinary schistosomiasis (bilharzia)</p> <p>This is caused by the parasitic trematode (or flatworm) called Schistosoma haematobium. It occurs in Africa (Egypt) and the Middle East.</p> <p>An X-ray may show a calcified, contracted bladder and evidence of obstructive uropathy. An ultrasound in established disease may show hydronephrosis and a thickened bladder wall.</p>



	<p>Complications</p> <p>The two most important complications needed to know for the PLAB exam is</p> <ul style="list-style-type: none">• Squamous cell carcinoma of the bladder → there can be a lag period of around 20 years between infection and the development of malignancy• Bladder calcification, and ulceration
8.	<p>A 73 year old woman living in a nursing home, presents with rashes on her finger webs and also at her axillary folds. She complains of itching which is more severe at night. What is the SINGLE most appropriate management?</p> <p>A. 0.5% permethrin B. Doxycycline C. 5% permethrin D. Aciclovir E. Malathion 0.5%</p> <p>In PLAB, when you see an elderly living in a nursing home with rashes, think of scabies</p> <p>Permethrin 5% is probably the only treatment that would be asked in PLAB for scabies</p> <p>Scabies</p> <p>Scabies is a parasitic skin infection characterized by superficial burrows, intense pruritus, and secondary infections</p> <p>Aetiology</p> <p>Sarcoptes scabiei. Transmitted by skin-to-skin contact.</p> <p>Clinical Findings</p> <ul style="list-style-type: none">• Pruritus, burrows, papules, commonly found on flexor surfaces of wrists, finger webs, elbows, axillary folds, areola of the breast in women, and genitals of the males. Scabies digs into the skin at the skin folds.• Patients who are immunocompromised or debilitated may develop a severe form of scabies called Norwegian scabies (crusted scabies). These patients present with diffuse cutaneous involvement with crusting and malodorous discharge. <p>Treatment</p> <ul style="list-style-type: none">• Scabies treatment is with permethrin 5% which is first-line• (malathion 0.5% is second-line)• Note: all household and close physical contacts should be treated at the same time, even if asymptomatic



9. A 78 year old nursing home resident has intensely itchy rash. White linear lesions are seen on the wrists and elbows, and red papules are present on his penis. What is the SINGLE most appropriate management?

- A. Topical permethrin
- B. Referral to GUM clinic
- C. Topical betnovate
- D. Topical ketoconazole
- E. Topical selenium sulfide hyoscine

In PLAB, when you see an elderly living in a nursing home with rashes, think of scabies

Permethrin 5% is probably the only treatment that would be asked in PLAB for scabies

Scabies

Scabies is a parasitic skin infection characterized by superficial burrows, intense pruritus, and secondary infections

Aetiology

Sarcoptes scabiei. Transmitted by skin-to-skin contact.

Clinical Findings

- Pruritus, burrows, papules, commonly found on flexor surfaces of wrists, finger webs, elbows, axillary folds, areola of the breast in women, and genitals of the males. Scabies digs into the skin at the skin folds.
- Patients who are immunocompromised or debilitated may develop a severe form of scabies called Norwegian scabies (crusted scabies). These patients present with diffuse cutaneous involvement with crusting and malodorous discharge.

Treatment

- Scabies treatment is with permethrin 5% which is first-line
- (malathion 0.5% is second-line)
- Note: all household and close physical contacts should be treated at the same time, even if asymptomatic



10. A 33 year old lady who works at a nursing home presents with itching. On examination, linear tracks on the wrist are seen. She says that 2 days ago she had come in contact with a nursing home resident with similar symptoms. What is the SINGLE most likely mechanism of itching?

- A. Infection
- B. Destruction of keratinocytes
- C. Allergic reaction**
- D. Intolerance
- E. Decreased histamine

In scabies, pruritus develops as an allergic reaction to infection, around 4-6 weeks after infestation.

Most of the symptoms of scabies are due to your immune system's response to the mites, or to their saliva, their eggs or their poo (faeces). In other words, the rash and the itching are mostly caused by your body's allergic-like reaction to the mites, rather than the mites themselves.

Scabies

Scabies is a parasitic skin infection characterized by superficial burrows, intense pruritus, and secondary infections

Aetiology

Sarcoptes scabiei. Transmitted by skin-to-skin contact.

Clinical Findings

- Pruritus, burrows, papules, commonly found on flexor surfaces of wrists, finger webs, elbows, axillary folds, areola of the breast in women, and genitals of the males. Scabies digs into the skin at the skin folds.
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Treatment

- Scabies treatment is with permethrin 5% which is first-line
- (malathion 0.5% is second-line)
- Note: all household and close physical contacts should be treated at the same time, even if asymptomatic



11. A 14 year old boy has pain and swelling at the angles of the jaw bilaterally. He has a temperature of 38.4°C. He has been complaining of dry mouth and sore ears and he finds it difficult to talk. On examination, his scrotum is also swollen and oedematous and the testes are impalpable. What is the SINGLE most likely diagnosis?

- A. Acute mastoiditis
- B. Epididymo-orchitis
- C. Acute otitis media
- D. Mumps**
- E. Measles

Mumps

- Mumps is an acute, generalised infection caused by a paramyxovirus, usually in children and young adults
- It can infect any organ but usually affects the salivary glands
- The virus is highly infectious with transmission by droplets spread in saliva via close personal contact
- Infected persons excrete the virus for several days before symptoms appear and for several days afterwards

Presentation

- Mumps can be asymptomatic
- Nonspecific symptoms lasting a few days, such as fever, headache, malaise, myalgia and anorexia, can precede parotitis
- Parotitis is usually bilateral although it can be unilateral
- Typically, there is pain at or near the angle of the jaw
- Fever may be as high as 39.5°C without rigors in small children
- Swelling causes distortion of the face and neck with skin over the gland hot and flushed but there is no rash
- With severe swelling, the mouth cannot be opened and is dry because the salivary ducts are blocked.
- Discomfort lasts for three or four days but may be prolonged when one side clears and the other side swells.
- Usually just the parotid glands are involved but, rarely, the submaxillary and sublingual salivary glands are affected

Orchitis

Orchitis may occur four or five days after the start of parotitis but it often appears without it. This can sometimes lead to the diagnosis being missed. Orchitis presents with chills, sweats, headache and backache with swinging temperature and severe local testicular pain and tenderness. The scrotum is swollen and oedematous so that the testes are impalpable. Orchitis is usually unilateral but may be bilateral.



12. A 16 year old girl has a sore throat. She feels tired and weak. Oropharyngeal examination shows tonsillar enlargement which is exudative. Her GP prescribed her amoxicillin after which she developed a pruritic rash. What is the SINGLE most likely diagnosis?

A. Infectious mononucleosis

- B. Kawasaki disease
- C. Lymphoma
- D. Cytomegalovirus
- E. Group A streptococcal pharyngitis

A maculopapular, pruritic rash develops in around 99% of patients who take ampicillin/amoxicillin whilst they have infectious mononucleosis.

Infectious Mononucleosis

Infectious mononucleosis (glandular fever) is caused by the Epstein-Barr virus (also known as human herpesvirus 4, HHV-4). It is most common in adolescents and young adults.

Features

- Sore throat; tonsillar enlargement is common, classically exudative and may be massive
- Palatal petechiae
- Lymphadenopathy, especially neck glands
- Pyrexia
- Malaise
- Splenomegaly - may rarely predispose to splenic rupture
- A maculopapular, pruritic rash develops in around 99% of patients who take ampicillin/amoxicillin whilst they have infectious mononucleosis. Thus, they should not be given in any patient who might have infectious mononucleosis.

Diagnosis

- heterophil antibody test (Monospot test) (Paul Bunnell)

Other investigations:

- FBC
- raised white cell count with lymphocytosis and a relative atypical lymphocyte count greater than 20%
- ESR is elevated

Management is supportive

Simple analgesia for any aches or pains



13.	<p>A 33 year old man comes from India with cough, fever and enlarged cervical lymph nodes. Histology reveals caseating granulomas found in the lymph nodes. What is the SINGLE most likely diagnosis?</p> <p>A. Lymphoma B. Tuberculous lymphadenitis C. Thyroid carcinoma D. Goiter E. Thyroid cyst</p> <p>Tuberculous lymphadenitis (or tuberculous adenitis) is a chronic specific granulomatous inflammation of the lymph node with caseation necrosis, caused by infection with <i>Mycobacterium tuberculosis</i> or <i>Mycobacterium bovis</i>.</p> <p>Tuberculosis is responsible for up to 43 percent of peripheral lymphadenopathy in the developing world. In rural India, the prevalence of tuberculous lymphadenitis is significantly higher.</p>
14.	<p>A 24 year old man develops itching worse at night and following a bath. Examination reveals a greyish white linear rash that can be seen on the flexor surface of the wrist and axillary folds. What is the SINGLE most likely diagnosis?</p> <p>A. Scabies B. Polycythaemia C. Urticaria vasculitis D. Atopic eczema E. Lichen planus</p> <p>Do not get fooled by the itch that is worse at night following a bath. Although we see that commonly in polycythaemia, the greyish white linear rash on the wrist points towards scabies.</p> <p>Scabies</p> <p>Scabies is a parasitic skin infection characterized by superficial burrows, intense pruritus, and secondary infections</p> <p>Aetiology</p> <p><i>Sarcoptes scabiei</i>. Transmitted by skin-to-skin contact.</p> <p>Clinical Findings</p> <ul style="list-style-type: none">• Pruritus, burrows, papules, commonly found on flexor surfaces of wrists, finger webs, elbows, axillary folds, areola of the breast in women, and genitals of the males. Scabies digs into the skin at the skin folds.



	<ul style="list-style-type: none">Patients who are immunocompromised or debilitated may develop a severe form of scabies called Norwegian scabies (crusted scabies). These patients present with diffuse cutaneous involvement with crusting and malodorous discharge. <p>Treatment</p> <ul style="list-style-type: none">Scabies treatment is with permethrin 5% which is first-line(malathion 0.5% is second-line)Note: all household and close physical contacts should be treated at the same time, even if asymptomatic
15.	<p>A 4 year old child is brought by his parents with a clean wound. He has never been immunised as his parents are worried about the side effects of the immunisations. There are no contraindications to immunisation. What is the SINGLE most appropriate management?</p> <p>A. Full course of diphtheria, pertussis, tetanus (DTP) vaccine B. Rabies vaccination C. 1 single injection diphtheria, pertussis, tetanus (DTP) vaccine D. Intramuscular tetanus immunoglobulins E. Antibiotic</p> <p>Tetanus vaccine is currently given in the UK as part of the routine immunisation schedule at:</p> <ul style="list-style-type: none">2 months3 months4 months3-5 years13-18 years <p>If high-risk wound → Give intramuscular human tetanus immunoglobulin irrespective of whether 5 doses of tetanus vaccine have previously been given</p> <p>If incomplete or unknown vaccination → Give complete course of tetanus vaccine</p> <p>What is considered a high risk wound?</p> <ul style="list-style-type: none">Wounds contaminated with soilCompound fracturesWounds containing foreign bodiesWounds or burns in people with systemic sepsis



16.	<p>A 22 year old lady comes to the hospital with complaints of fever, vertigo and pain in her right ear. On physical examination, there are vesicles visible in her left ear. What is the SINGLE most likely diagnosis?</p> <p>A. Meniere's disease B. Ramsay Hunt syndrome C. Chicken pox D. Acoustic neuroma E. Cellulitis</p> <p>Ramsay Hunt syndrome (herpes zoster oticus) is caused by the reactivation of the varicella zoster virus in the geniculate ganglion of the seventh cranial nerve.</p> <p>Features</p> <ul style="list-style-type: none">• painful vesicular rash on the auditory canal• ipsilateral facial palsy• other features include loss of taste, vertigo, tinnitus <p>Management</p> <ul style="list-style-type: none">• oral acyclovir and corticosteroids
17.	<p>A 28 year old man presents with a widespread maculopapular rash over his soles and palms. He also has mouth ulcers. He had a penile ulcer which healed six weeks ago. What is the SINGLE most likely organism responsible?</p> <p>A. Mycoplasma genitalium B. Treponema pertenue C. Treponema pallidum D. Lymphogranuloma venereum E. Herpes simplex virus type 2</p> <p>Syphilis Syphilis is a sexually transmitted infection caused by the spirochaete <i>Treponema pallidum</i>. Acquired syphilis is characterised by primary, secondary and tertiary stages. The incubation period is around 3 weeks.</p> <p><u>Acquired syphilis</u></p> <p>Primary features</p> <ul style="list-style-type: none">• Chancre - painless ulcer at the site of sexual contact• Local non-tender lymphadenopathy• In women, they are found on the vulva, labia and, much less frequently, on the cervix. <p>Secondary features</p> <ul style="list-style-type: none">• Secondary syphilis often appears 6 weeks after the beginning of the primary lesion but may overlap or not appear for several months.



	<ul style="list-style-type: none">• Systemic symptoms: fevers, lymphadenopathy, headaches, malaise.• A generalised polymorphic rash often affects the palms, soles and face• Papules enlarge into condylomata lata (pink or grey discs) in moist warm areas. <p>Tertiary features</p> <ul style="list-style-type: none">• Gummas (granulomatous lesions → can occur in any organ but most commonly affect bone and skin)• Cardiovascular syphilis → ascending aortic aneurysms, aortic regurgitation• Neurological syphilis → tabes dorsalis, dementia
18.	<p>A 44 year old HIV positive man complains of a two week history of worsening headache, facial weakness and visual hallucinations. He also reports new onset of eye pain. An MRI head reveals multiple ring shaped contrast enhancing lesions. What is the SINGLE most likely causative organism?</p> <p>A. Cytomegalovirus B. Streptococcus C. Toxoplasma gondii D. Herpes Simplex Virus E. Pneumocystis jirovecii</p> <p>The symptoms and MRI findings here are highly suggestive of toxoplasmosis, a disease caused by the protozoan <i>Toxoplasma gondii</i>.</p> <p>The reason behind the HIV history is that toxoplasmosis can reactivate in those with severe HIV disease when their CD4 counts are very low (<50-100/μL).</p> <p>Principle Manifestations usually include a brain mass lesion, headache, confusion, seizures, and focal neurologic deficits. Symptoms and signs of increased ICP.</p> <p>CT or MRI scan of the head would show a "ring" (contrast) enhancing lesion with oedema</p> <p>Toxoplasmosis</p> <p><i>Toxoplasma gondii</i> is a protozoa which infects the body via the GI tract, lung or broken skin. It's oocysts release trophozoites which migrate widely around the body including to the eye, brain and muscle. The usual animal reservoir is the cat, although other animals such as rats carry the disease.</p> <p>Most infections are asymptomatic. Symptomatic patients usually have a self-limiting infection, often having clinical features resembling infectious mononucleosis (fever, malaise, lymphadenopathy). Other less common manifestations include meningoencephalitis and myocarditis.</p> <p>Treatment: pyrimethamine plus sulphadiazine</p>



19.	<p>A 49 year old man with known HIV presents with history of cough and shortness of breath. His CD4 count is measured at 350mm^3. A chest X-ray was performed and shows lobar consolidation. He has a temperature of 38.1°C, a respiratory rate of 30 breaths/minute and a heart rate of 90 beats/minute. What is the SINGLE most likely causative organism?</p> <p>A. Mycobacterium avium intracellulare B. Cytomegalovirus C. Streptococcus pneumoniae D. Toxoplasmosis E. Pneumocystis jiroveci</p> <p>This is another debatable topic. At first, the impression that is given in the stem points towards Pneumocystis jiroveci given the history of cough and a HIV-positive patient. Pneumocystis jiroveci is obviously the most common opportunistic infection in HIV positive patients. However, one must remember that Pneumocystis jiroveci tends to affect HIV-positive patients who have a CD4 count below 200 cells/mm^3. For this reason, all patients with a CD4 count $< 200/\text{mm}^3$ should receive Pneumocystis jiroveci prophylaxis. While it is true that Pneumocystis jiroveci can also infect a HIV positive patient with a CD4 count above 200 cells/mm^3, it is less likely compared to Streptococcus pneumoniae.</p> <p>The chest X-ray findings also point more towards Streptococcus pneumoniae as the causative organism. Remember that Streptococcus pneumoniae is the most common causative organism of lobar pneumonia and it accounts for around 80% of cases of community acquired pneumonia (CAP). Note that, HIV infection is also a risk factor for Streptococcus pneumoniae infections.</p>
20.	<p>A 55 year old immunocompromised patient presents with dysphagia and pain on swallowing. He has a redness, fissuring and soreness at the angle of his mouth. What is the SINGLE causative organism?</p> <p>A. Human herpesvirus 8 B. Molluscum contagiosum C. Cytomegalovirus D. Candida E. Toxoplasma gondii</p> <p>Angular cheilitis</p> <ul style="list-style-type: none">• Redness, fissuring and soreness at the angle of the mouth.• It can be due either to Candida spp. or to bacterial infection (mainly Staphylococcus aureus)• Contributing factors are older age, ill-fitting dentures, immunocompromised, vitamin B12 deficiency or iron-deficiency anaemia



21. A 17 year old man has acute pain and earache on the right side of his face. He has a temperature of 39.4°C and has extensive pre-auricular swelling that is tender on palpation bilaterally. He also complains of headache, malaise, and dry mouth. What is the SINGLE most likely diagnosis?

- A. Acute mastoiditis
- B. Acute otitis externa
- C. Acute otitis media
- D. Mumps**
- E. Otitis media with effusion

Mumps

- Mumps is an acute, generalised infection caused by a paramyxovirus, usually in children and young adults
- It can infect any organ but usually affects the salivary glands
- The virus is highly infectious with transmission by droplets spread in saliva via close personal contact
- Infected persons excrete the virus for several days before symptoms appear and for several days afterwards

Presentation

- Mumps can be asymptomatic
- Nonspecific symptoms lasting a few days, such as fever, headache, malaise, myalgia and anorexia, can precede parotitis
- Parotitis is usually bilateral although it can be unilateral
- Typically, there is pain at or near the angle of the jaw
- Fever may be as high as 39.5°C without rigors in small children
- Swelling causes distortion of the face and neck with skin over the gland hot and flushed but there is no rash
- With severe swelling, the mouth cannot be opened and is dry because the salivary ducts are blocked.
- Discomfort lasts for three or four days but may be prolonged when one side clears and the other side swells.
- Usually just the parotid glands are involved but, rarely, the submaxillary and sublingual salivary glands are affected

Orchitis

Orchitis may occur four or five days after the start of parotitis but it often appears without it. This can sometimes lead to the diagnosis being missed. Orchitis presents with chills, sweats, headache and backache with swinging temperature and severe local testicular pain and tenderness. The scrotum is swollen and oedematous so that the testes are impalpable. Orchitis is usually unilateral but may be bilateral.



22.	<p>A 16 year old girl attends clinic with a sore throat and palatal petechiae. A full blood count was done which shows:</p> <p>Haemoglobin 109 g/L White cell count $25 \times 10^9/L$ platelets $88 \times 10^9/L$</p> <p>A Paul Bunnell test was shown to be positive. What is the SINGLE most likely diagnosis?</p> <p>A. Glandular fever B. Idiopathic thrombocytopenic purpura (ITP) C. Measles D. Rubella E. Thrombotic thrombocytopenic purpura (TTP)</p> <p>The clincher here is the positive Paul Bunnell test which is only seen in infectious mononucleosis (Glandular fever). The rest of the symptoms fit perfectly as well. Palatal petechiae and sore throat can occur with infectious mononucleosis. WBCs are classically high and the anaemia is secondary to cold agglutinins (IgM).</p> <p>Infectious Mononucleosis</p> <p>Infectious mononucleosis (glandular fever) is caused by the Epstein-Barr virus (also known as human herpesvirus 4, HHV-4). It is most common in adolescents and young adults.</p> <p>Features</p> <ul style="list-style-type: none">• Sore throat; tonsillar enlargement is common, classically exudative and may be massive• Palatal petechiae• Lymphadenopathy, especially neck glands.• Pyrexia• Malaise• Splenomegaly - may rarely predispose to splenic rupture
23.	<p>A 35 year old lady presents with recurrent extremely painful ulcers on her vulva. Viral culture and DNA detection using polymerase chain reaction (PCR) of a swab from the ulcer has come back as negative. What is the SINGLE most appropriate investigations which will lead to the diagnosis?</p> <p>A. Anti-HSV antibodies B. Dark ground microscopy of the ulcer C. Treponema pallidum antibody test D. Rapid plasma reagin test E. Venereal Disease Research Laboratory test (VDRL)</p> <p>The probable diagnosis here is Genital Herpes Simplex. Usually Viral culture and</p>



	<p>DNA detection using polymerase chain reaction (PCR) of a swab from the base of an ulcer are used to diagnose genital herpes.</p> <p>Anti-HSV antibodies are only used in certain scenarios. One of them is if there are recurrent/atypical genital ulcers with negative culture or PCR results.</p> <p>Genital Herpes</p> <ul style="list-style-type: none">• may be asymptomatic or may remain dormant for months or even years. When symptoms occur soon after a person is infected, they tend to be severe. They may start as multiple small blisters that eventually break open and produce raw, painful sores that scab and heal over within a few weeks. The blisters and sores may be accompanied by flu-like symptoms with fever and swollen lymph nodes.• Genital herpes can be a chronic, lifelong infection. Majority of cases are caused by HSV-2 (HSV-1 is taking over). <p>Signs: Flu-like prodrome, then grouped vesicles/papules develop around genitals. These burst, and form shallow ulcers.</p> <p>Management: Oral aciclovir. Some patients with frequent exacerbations may benefit from longer term acyclovir</p>
24.	<p>A 16 year old girl has had an enlarging mass in the right side of her neck for the past 2 weeks with a sore throat. She feels tired and weak. She has several smaller associated lymph nodes that are palpable at her axilla. Oropharyngeal examination shows tonsillar enlargement which is exudative. What is the SINGLE most likely diagnosis?</p> <p>A. Infectious mononucleosis B. Leukaemia C. Lymphoma D. Mumps E. Tuberculosis</p> <p>Infectious Mononucleosis</p> <p>Infectious mononucleosis (glandular fever) is caused by the Epstein-Barr virus (also known as human herpesvirus 4, HHV-4). It is most common in adolescents and young adults.</p> <p>Features</p> <ul style="list-style-type: none">• Sore throat; tonsillar enlargement is common, classically exudative and may be massive• Palatal petechiae• Lymphadenopathy, especially neck glands.• Pyrexia• Malaise• Splenomegaly - may rarely predispose to splenic rupture



25.	<p>A 75 year old woman has weakness of the left side of her face and pain deep within the left ear. The ear pain was paroxysmal at first but after a day it became constant and radiates into the pinna. Now she has hears ringing in her left ear. A mild left hearing loss was noted. There are blisters on the skin of the ear canal and auricle. What is the SINGLE most likely diagnosis?</p> <p>A. Chronic serous otitis media B. Herpes zoster oticus C. Herpes simplex infection D. Viral labyrinthitis E. Bell's palsy</p> <p>Ramsay Hunt syndrome Ramsay Hunt syndrome (herpes zoster oticus) is caused by the reactivation of the varicella zoster virus in the geniculate ganglion of the seventh cranial nerve.</p> <p>Features</p> <ul style="list-style-type: none">• Auricular pain is often the first feature• Facial nerve palsy (ipsilateral facial palsy, loss of taste)• Painful vesicular rash around the ear on the auditory canal• Vertigo and tinnitus• Ipsilateral hearing loss <p>Management</p> <ul style="list-style-type: none">• Oral acyclovir and corticosteroids are usually given• For herpetic neuralgia, give amitriptyline for the pain
26.	<p>A 74 year old female presents with headache and neck stiffness to the emergency department. Following a lumbar puncture, the patient was started on IV ceftriaxone. CSF culture reports as having listeria monocytogenes. What is the SINGLE most appropriate treatment?</p> <p>A. Add IV amoxicillin B. Change to IV ampicillin + gentamicin C. Add IV ciprofloxacin D. Add vancomycin E. Continue IV ceftriaxone as monotherapy</p> <p>The therapy after identification of Listeria monocytogenes in CSF is ampicillin 2g 4 hourly + gentamicin 5 mg/kg divided into 8-hourly doses</p>



27.	<p>An 8 year old boy has red, itchy rash on his abdomen, face, arms and legs that has turned into fluid-filled blisters. A few days later they crusted over. What is the main mode of transmission of this condition?</p> <p>A. Airborne B. Direct contact C. Bloodborne D. Vectorborne E. Waterborne</p> <p>The diagnosis here is chicken pox. It is caused by varicella-zoster virus. The mode of transmission of varicella zoster virus is mainly person-to-person by airborne respiratory droplets, but also occurs by direct contact with vesicle fluid of chickenpox cases or contact with the vesicle fluid of patients with herpes zoster.</p>
28.	<p>A 3 year old girl presents with a history of fever for 2 days. She is drowsy and had a seizure causing twitching of the right side of the body for 4 minutes. Her respiratory rate is 30 beats/minute, oxygen saturation is 90%, temperature is 38.9°C, and capillary refill time is 2 seconds. A urine dipstick was reported as negative. What is the SINGLE most appropriate investigation?</p> <p>A. Blood culture B. Blood glucose C. Chest X-ray D. Urine culture and sensitivity E. CSF analysis</p> <p>The fever and drowsiness are nonspecific but given there is no history of a urinary tract infection, or cough indicating a respiratory infection, we should consider CNS involvement.</p> <p>In meningitis, some children will present with mostly nonspecific symptoms or signs.</p> <p>In meningitis, If the patient has got a rash, then perform blood culture as the diagnosis is most likely meningococcal septicaemia. The causative organism is <i>Neisseria meningitidis</i>.</p> <p>If there is no rash then a lumbar puncture would be a better answer, but this can only be done if there are no signs of raised intracranial pressure.</p> <p>Generally, treatment for meningitis should be started before doing any investigations due to the seriousness of the disease.</p>



29. A 40 year old man who recently traveled to Sudan 5 weeks ago presents with dark urine, rigors and a fever. On examination, a tender hepatomegaly was noted. What is the SINGLE most likely diagnosis?

- A. Malaria**
- B. Brucellosis
- C. Leptospirosis
- D. Schistosomiasis
- E. Ebola

This is a very interesting question with a huge debate between Malaria and Schistosomiasis.

Initially, one may pick Schistosomiasis as Schistosomiasis is widely distributed in in Sudan with more than 5 million people, mostly children, requiring treatment. 5 weeks here fits the timeline of schistosomiasis as symptoms usually takes from four to six weeks from the time of infection. They may feel generally unwell at this point however in majority of cases blood in the urine only occurs somewhere between 10 to 12 weeks after the infection. The blood in urine is due to the worms of Schistosoma haematobium migrating to the veins around the bladder and ureters.

Furthermore, one must remember that bladder involvement is caused by Schistosoma haematobium while Schistosoma mansoni is mainly responsible for intestinal forms of disease. Hepatomegaly is not a clinical feature of infection with Schistosoma haematobium (which causes the bloody urine). It can be seen in infections with Schistosoma mansoni but again these are two different infections. Infections with Schistosoma mansoni does not cause bloody urine.

In short, a patient suffering from urinary schistosomiasis (caused by Schistosoma haematobium) will develop terminal haematuria, while another patient infected with Schistosoma mansoni may develop hepatomegaly but ultimately these symptoms are caused by different species.

Considering the clinical features, the best answer is Malaria. Blackwater fever is a complication of malaria infection in which red blood cells burst in the bloodstream (haemolysis), releasing hemoglobin directly into the blood vessels and into the urine. This accounts for the dark urine. Malaria is also known to cause hepatomegaly.

30. A 46 year old man is being investigated for indigestion. A jejunal biopsy shows deposition of macrophages in the lamina propria-containing granules which stain positive for Periodic Acid-Schiff (PAS). What is the SINGLE most likely diagnosis?

- A. Bacterial overgrowth
- B. Coeliac disease
- C. Tropical sprue
- D. Whipple's disease**
- E. Small bowel lymphoma

A jejunal biopsy shows deposition of macrophages in the lamina propria-containing granules which stain positive for Periodic Acid-Schiff (PAS) are diagnostic for Whipple's disease.



	<p>Whipple's disease</p> <p>Whipple's disease is a rare disease featuring GI malabsorption which usually occurs in middle-aged white males, most commonly in Europe. It is fatal if untreated and is caused by <i>Tropheryma whippelii</i>, which, combined with defective cell-mediated immunity, produces a systemic disease.</p> <p>Features:</p> <ul style="list-style-type: none">• Often starts insidiously with arthralgia (mainly peripheral joints)• GI symptoms commonly include colicky abdominal pain, weight loss, steatorrhea/diarrhoea, which leads to malabsorption.• Systemic symptoms such as chronic cough, fever, sweats, lymphadenopathy and skin hyperpigmentation also occur• Cardiac involvement may lead to endocarditis• CNS features include a reversible dementia, ophthalmoplegia, and facial myoclonus <p>Tests:</p> <ul style="list-style-type: none">• Diagnosis requires a high level of clinical suspicion• Jejunal biopsy shows stunted villi. There is deposition of macrophages in the lamina propria-containing granules which stain positive for Periodic Acid-Schiff (PAS).
31.	<p>A 33 year old man presents with an erythematous patch on his thigh, which has been enlarging in the last few days. He went for a camping trip a week ago. He has no allergies to any known medication. He is otherwise asymptomatic. What is the SINGLE most appropriate management?</p> <p>A. Erythromycin B. Doxycycline C. Penicillin D. Amoxicillin E. Ceftriaxone</p> <p>Lyme disease</p> <p>Lyme disease is caused by the spirochaete <i>Borrelia burgdorferi</i> and is spread by ticks (<i>Ixodes scapularis</i> tick)</p> <p>Tick needs at least 24 hours of attachment to transmit the <i>Borrelia burgdorferi</i> organism.</p> <p>Clinical presentation</p> <p>Symptoms begin 3-30 days after the bite of the tick. Eighty percent of patients develop the erythema migrans rash at the site of the bite. (An erythematous patch, which may enlarge in the first few days) Even without treatment, the rash resolves in several weeks. A flu like illness with fever, chills, and myalgias occurs in half of patients.</p> <p>Neurologic symptoms develop several weeks later. This is most commonly paralysis of the seventh cranial nerve (facial paralysis) and may be bilateral. Meningitis, and encephalitis may develop as well.</p>



	<p>Cardiac symptoms develop a minority of people and is most commonly an AV heart block or Myocarditis</p> <p>Joint involvement may develop but this is months to years later</p> <p>Investigation Serology: antibodies to <i>Borrelia burgdorferi</i></p> <p>Management</p> <ul style="list-style-type: none">• Doxycycline if early disease. Amoxicillin is an alternative if doxycycline is contraindicated (e.g. pregnancy)• Ceftriaxone if disseminated disease
32.	<p>A 36 year old Jewish man presents with multiple purple papular lesions on his face and upper trunk measuring 1-2 cm across. It has been slowly growing over the last couple of years. It is not painful or itchy. What is the SINGLE most likely diagnosis?</p> <p>A. Kaposi's sarcoma B. Hairy leukoplakia C. Cryptosporidium D. Cytomegalovirus infection E. Cryptococcal infection</p> <p>Kaposi's sarcoma</p> <p>Kaposi's sarcoma (KS) is a connective tissue cancer caused by human herpesvirus 8 - now called Kaposi's sarcoma-associated herpesvirus (KSHV). The malignant lesion is characterised by neoplastic cells and abnormally growing blood vessels. KS is different to other neoplasms by virtue of the fact that lesions may begin in more than one place at the same time.</p> <p>Types of Kaposi's sarcoma:</p> <ol style="list-style-type: none">1. Classic: especially elderly Jewish or Mediterranean man. It is rare and progresses slowly over years.2. Endemic or African KS: affects young adult men who live near the African equator and have a normal immune system.3. KS in immunosuppression: Aggressive course with visceral involvement.4. AIDS related: May be life-threatening with many skin, gut and lung lesions. It affects mostly homo- or bisexual men <p>Presentation</p> <ul style="list-style-type: none">• Skin lesions may be nodular, papular or blotchy; they may be red, purple, brown or black.• Lesions can also be seen under or on mucous membranes, with similar characteristics.• The most common sites include the mouth, nose and throat.• Usually painless but may become painful if inflamed or swollen.



	<ul style="list-style-type: none">Lesions may also involve internal organs - eg, lungs (leading to dyspnoea), gastrointestinal tract (it can cause fatal bleeding) and lymphatics, resulting in lymphoedema
33.	<p>A 5 year old boy has a sudden onset of fever and bilateral swelling at the angles of the jaw. He has ear pain when he chews. The GP saw him yesterday for bilateral parotid pain and prescribed him paracetamol. He currently has a temperature of 38.8°C. What is the SINGLE most appropriate next step?</p> <p>A. Corticosteroids B. Antibiotic C. Biopsy D. Immediate surgery E. Reassurance</p> <p>Remember that there is no specific treatment for mumps but drugs such as paracetamol and ibuprofen may give symptomatic relief. In this case, reassurance is all that is needed. Mumps is a self limiting condition.</p> <p>Mumps</p> <ul style="list-style-type: none">Mumps is an acute, generalised infection caused by a paramyxovirus, usually in children and young adultsIt can infect any organ but usually affects the salivary glandsThe virus is highly infectious with transmission by droplets spread in saliva via close personal contactInfected persons excrete the virus for several days before symptoms appear and for several days afterwards <p>Presentation</p> <ul style="list-style-type: none">Mumps can be asymptomaticNonspecific symptoms lasting a few days, such as fever, headache, malaise, myalgia and anorexia, can precede parotitisParotitis is usually bilateral although it can be unilateralTypically, there is pain at or near the angle of the jawFever may be as high as 39.5°C without rigors in small childrenSwelling causes distortion of the face and neck with skin over the gland hot and flushed but there is no rashWith severe swelling, the mouth cannot be opened and is dry because the salivary ducts are blocked.Discomfort lasts for three or four days but may be prolonged when one side clears and the other side swells.Usually just the parotid glands are involved but, rarely, the submaxillary and sublingual salivary glands are affected <p><u>Orchitis</u></p>



	<p>Orchitis may occur four or five days after the start of parotitis but it often appears without it. This can sometimes lead to the diagnosis being missed. Orchitis presents with chills, sweats, headache and backache with swinging temperature and severe local testicular pain and tenderness. The scrotum is swollen and oedematous so that the testes are impalpable. Orchitis is usually unilateral but may be bilateral.</p>
34.	<p>A 20 year old lady is suffering from fever and loss of appetite. She has been diagnosed with toxoplasmosis. What is the SINGLE most appropriate treatment?</p> <p>A. Pyrimethamine B. Pyrimethamine + sulfadiazine C. Clindamycin D. Spiramycin E. Trimethoprim + sulfamethoxazole</p> <p>Toxoplasmosis Toxoplasma gondii is a protozoa which infects the body via the GI tract, lung or broken skin. It's oocysts release trophozoites which migrate widely around the body including to the eye, brain and muscle. The usual animal reservoir is the cat, although other animals such as rats carry the disease.</p> <p>Most infections are asymptomatic. Symptomatic patients usually have a self-limiting infection, often having clinical features resembling infectious mononucleosis (fever, malaise, lymphadenopathy). Other less common manifestations include meningoencephalitis and myocarditis.</p> <p>Treatment: pyrimethamine plus sulfadiazine</p>
35.	<p>A 28 year old man presents with a deep penetrating wound on his foot after having stepped on a nail in a field. He said he had the full course of tetanus vaccine when he was in school and again at 18 years old. What is the SINGLE most appropriate management to be given?</p> <p>A. Tetanus immunoglobulins only B. Tetanus immunoglobulins and tetanus vaccine C. Complete course of tetanus vaccine D. Tetanus booster vaccine only E. Antibiotic</p> <p>Tetanus vaccine is currently given in the UK as part of the routine immunisation schedule at:</p> <ul style="list-style-type: none">• 2 months• 3 months• 4 months• 3-5 years• 13-18 years <p>If high-risk wound → Give intramuscular human tetanus immunoglobulin irrespective of whether 5 doses of tetanus vaccine have previously been given</p>



	<p>If incomplete or unknown vaccination → Give complete course of tetanus vaccine</p> <p>What is considered a high risk wound?</p> <ul style="list-style-type: none">• Wounds contaminated with soil• Compound fractures• Wounds containing foreign bodies• Wounds or burns in people with systemic sepsis
36.	<p>A 36 year old homosexual man has multiple purple nodular lesions on his face and upper trunk measuring 1-2 cm across. It is not painful or itchy. What is the SINGLE most likely diagnosis?</p> <p>A. Kaposi's sarcoma B. Squamous cell carcinoma C. Basal cell carcinoma D. Melanoma E. Cryptococcal infection</p> <p>Kaposi's sarcoma</p> <p>Kaposi's sarcoma (KS) is a connective tissue cancer caused by human herpesvirus 8 - now called Kaposi's sarcoma-associated herpesvirus (KSHV). The malignant lesion is characterised by neoplastic cells and abnormally growing blood vessels. KS is different to other neoplasms by virtue of the fact that lesions may begin in more than one place at the same time.</p> <p>Types of Kaposi's sarcoma:</p> <ol style="list-style-type: none">5. Classic: especially elderly Jewish or Mediterranean man. It is rare and progresses slowly over years.6. Endemic or African KS: affects young adult men who live near the African equator and have a normal immune system.7. KS in immunosuppression: Aggressive course with visceral involvement.8. AIDS related: May be life-threatening with many skin, gut and lung lesions. It affects mostly homo- or bisexual men <p>Presentation</p> <ul style="list-style-type: none">• Skin lesions may be nodular, papular or blotchy; they may be red, purple, brown or black.• Lesions can also be seen under or on mucous membranes, with similar characteristics.• The most common sites include the mouth, nose and throat.• Usually painless but may become painful if inflamed or swollen.• Lesions may also involve internal organs - eg, lungs (leading to dyspnoea), gastrointestinal tract (it can cause fatal bleeding) and lymphatics, resulting in lymphoedema



37. A 30 year old man is seen in the emergency department with vomiting, muscle pain, rash at his axilla and sensitivity to light. He has a temperature of 38.9°C. The medical staff are suspecting he is suffering from meningitis. Which is the SINGLE most appropriate empirical antibiotic to be started immediately?

- A. IM Benzylpenicillin
- B. IV Cefotaxime**
- C. IV Gentamicin
- D. IV Aciclovir
- E. IV Amoxicillin

In a hospital setting, give intravenous third generation cephalosporin antibiotics (ceftriaxone or cefotaxime)

If this exact same questions was given but she presented to her GP (or was found outside the hospital), then benzylpenicillin IM or IV would be the correct answer. If you suspect meningitis and patient is not yet in the hospital give IM/IV benzylpenicillin and send patient to the hospital.

If this exact same question was given, but there was a diagnosis of Listeria, then IV amoxicillin and gentamicin would be the correct answer

If this exact same question was given, but she is penicillin or cephalosporin allergic, then chloramphenicol would be the answer. If the patient has a history of immediate hypersensitivity reaction to penicillin or to cephalosporins the BNF recommends using chloramphenicol.

Investigations

Generally, treatment for meningitis should be started before doing any investigations due to the seriousness of the disease.

Rash

If patient has got a rash, then perform blood culture as the diagnosis is most likely meningococcal septicaemia. The causative organism is *Neisseria meningitidis*.

If there is no rash then a lumbar puncture would be a better answer, but this can only be done if there are no signs of raised intracranial pressure

Management of contacts

Prophylaxis (oral ciprofloxacin or rifampicin) needs to be offered to household and close contacts of patients affected with meningococcal meningitis

Summary

Pre-hospital setting + Suspect meningococcal disease → IM benzylpenicillin

Hospital setting + Suspect meningococcal disease → IV cefotaxime

Meningitis caused by listeria → IV amoxicillin and gentamicin

Hypersensitivity reaction to penicillin or cephalosporins → chloramphenicol

Prophylaxis to close contact (meningococcal meningitis) → oral ciprofloxacin or rifampicin



38.	<p>A 55 year old man has auricular pain and tinnitus on his left ear. On inspection, a painful vesicular rash around the auditory canal is noted. He also has decreased hearing on the left ear. What is the SINGLE most likely diagnosis?</p> <p>A. Acute mastoiditis B. Cholesteatoma C. Ramsay Hunt syndrome D. Herpes zoster ophthalmicus E. Otitis media with effusion</p> <p>Ramsay Hunt syndrome Ramsay Hunt syndrome (herpes zoster oticus) is caused by the reactivation of the varicella zoster virus in the geniculate ganglion of the seventh cranial nerve.</p> <p>Features</p> <ul style="list-style-type: none">• Auricular pain is often the first feature• Facial nerve palsy (ipsilateral facial palsy, loss of taste)• Painful vesicular rash around the ear on the auditory canal• Vertigo and tinnitus• Ipsilateral hearing loss <p>Management</p> <ul style="list-style-type: none">• Oral acyclovir and corticosteroids are usually given• For herpetic neuralgia, give amitriptyline for the pain
39.	<p>A 20 year old man with a known diagnosis of otitis media presents with a severe headache, and sensitivity to light. He is shivering, sweating and has a temperature of 38.9°C. What is the SINGLE most likely complication?</p> <p>A. Giant cell arteritis B. Meningitis C. Myringitis D. Trigeminal neuralgia E. Labyrinthitis</p> <p>One of the very serious but rare complications of otitis media is meningitis. This patient has clear signs that resemble meningitis.</p>



40.	<p>A 62 year old IV drug abuser is brought into the emergency department with complaint of fever, shivering, malaise, shortness of breath and productive cough. Around 8 days ago he developed symptoms consistent with a flu-like illness. Initially there was an improvement in his condition but deteriorated over the past three days. He now has a temperature of 39°C, a pulse of 110 beats/minute, a blood pressure of 100/70 mmHg and a respiratory rate of 22 breaths/minute. A Chest X-ray shows bilateral cavitations. What is the SINGLE most likely causative organism?</p> <p>A. <i>Mycoplasma pneumoniae</i> B. <i>Staphylococcus aureus</i> C. <i>Chlamydia pneumoniae</i> D. <i>Escherichia coli</i> E. <i>Klebsiella pneumoniae</i></p> <p>Staphylococcus aureus may complicate influenza infection and is seen most frequently in the elderly and in intravenous drug users or patients with underlying disease. Chest X-ray shows bilateral cavitations. Remember, there is a high incidence of Staphylococcus aureus pneumonia in patients following influenza so in PLAB if you see a patient with a flu-like illness which symptoms are now of pneumonia, the likely causative organism is Staphylococcus aureus.</p>
41.	<p>A 30 year old man presents to the emergency department with difficulty breathing. He has returned from India 5 days ago. On examination, his throat reveals grey membranes on the tonsils and uvula. He has a fever, and enlarged anterior cervical lymph nodes. What is the SINGLE most likely diagnosis?</p> <p>A. Diphtheria B. Infectious mononucleosis C. Acute follicular tonsillitis D. Scarlet fever E. Agranulocytosis</p> <p>History of travel to India with grey membrane in tonsil and uvula, and a low grade fever, supports the diagnosis of diphtheria. Note that the pseudomembrane may cause respiratory obstruction as seen in this question.</p> <p>Diphtheria Risk factors</p> <ul style="list-style-type: none">• In countries where hygiene is poor, cutaneous diphtheria is the predominant clinical manifestation and source of infection.• Poor living conditions and lack of immunisation, especially where there is not an immunisation programme, increase risk <p>Presentation</p> <ul style="list-style-type: none">• Very early symptoms may be similar to the common cold.• Often diphtheria presents with a nasal discharge that is initially watery and becomes purulent and blood-stained. The nostril can be sore or crusted with the pseudomembrane sometimes visible within the nostril.• Incubation period is usually 2-5 days, but may be up to 10 days.



- In diphtheria of the upper respiratory tract, there is a membranous pharyngitis (often referred to as a pseudomembrane) with fever, enlarged anterior cervical lymph nodes and oedema of soft tissues giving a 'bull neck' appearance.
- The pseudomembrane may cause respiratory obstruction.
- Swallowing may be made difficult by unilateral or bilateral paralysis of the muscles of the palate.
- The exotoxin also affects other parts of the body, including the heart and nervous systems. It may cause paralysis and cardiac failure.


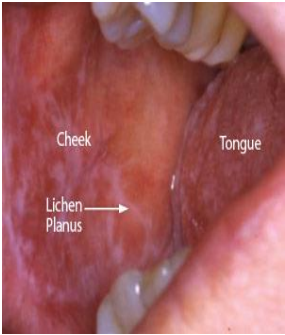

42. A 33 year old male patient presents with a white patches in the mouth that can be wiped off and is easily removed leaving behind a red base which is painless. He has cracks at the corners of his mouth. What is the SINGLE most likely diagnosis?

- A. Kaposi's sarcoma
- B. Molluscum contagiosum
- C. Cytomegalovirus infection
- D. Oral thrush**
- E. Leukoplakia

Pseudomembranous oral candidiasis (oral thrush)

- Curd-like white patches in the mouth. The white pseudomembrane can be easily removed, leaving an underlying red base that is usually painless (in contrast with leukoplakia, which cannot be rubbed off)
- Cracks can occasionally be seen at the corners of the mouth

Candida Vs Lichen Planus Vs Leukoplakia

Oral Candidiasis	Oral Lichen Planus	Leukoplakia
		
History of immunosuppression or smoking e.g. taking oral/inhaled steroids Thick white marks	Lace like appearance	Also history of smoking Raised edges/ bright white patches and sharply defined and cannot be rubbed out like a candida patch. Treatment



	<p>Treatment</p> <p>If using inhaled steroids, good inhaler technique, spacer device, rinse mouth with water after use.</p> <p>Stop smoking</p> <p>Oral fluconazole 50 mg/day for 7 days.</p>		Stop smoking	
43.	<p>A 33 year old man with Hodgkin's lymphoma has chemotherapy 9 days ago. He develops a temperature of 39.0°C and signs of a chest infection. Blood count shows:</p> <p>Haemoglobin 113 g/L White cell count $2.3 \times 10^9/L$ Neutrophils $0.8 \times 10^9/L$ Platelets $150 \times 10^9/L$</p> <p>What is the SINGLE most likely management?</p> <p>A. Co-amoxiclav B. Piperacillin+tazobactam C. Erythromycin D. Piperacillin+Co-amoxiclav E. Clarithromycin</p> <p>Piperacillin-Tazobactam may be used in the management of neutropenic patients with fever suspected to be due to a bacterial infection as in patient with post-chemotherapy neutropenia.</p> <p>There are 2 main reasons neutropenia is seen in lymphoma:</p> <p>3. Lymphoma in the bone marrow</p> <ul style="list-style-type: none">• If lymphoma cells are in the bone marrow, they take up space that is normally used to produce healthy blood cells which can lead to neutropenia. <p>4. Side effects of treatment</p> <ul style="list-style-type: none">• Although the aim of treatment is to kill the lymphoma cells, a side effect of many types of chemotherapy, and some radiotherapy treatments (eg radiotherapy to the pelvis), is that some healthy cells are also destroyed. This may include blood cells that are developing in the bone marrow.• Depending on the strength of your chemotherapy regimen, neutropenia is most commonly seen 10 to 14 days after chemotherapy			



	<p>Neutropenic sepsis is a potentially fatal complication of anticancer treatment (particularly chemotherapy).</p> <p>Febrile neutropenia is defined as:</p> <ul style="list-style-type: none">• An oral temperature $\geq 38.5^{\circ}\text{C}$ or two consecutive readings of $\geq 38.0^{\circ}\text{C}$ for two hours and• An absolute neutrophil count $\leq 0.5 \times 10^9/\text{L}$ <p>Febrile neutropenia should also be suspected in:</p> <ul style="list-style-type: none">• Recipients of chemotherapy within the last 4 weeks• Recipients of bone marrow transplant within the last year who are febrile• Treat these patients, pending confirmation of neutrophil count, to avoid any delays in antibiotic administration. <p>General Management for Neutropenic Sepsis</p> <ul style="list-style-type: none">• Antibiotics must be started immediately (do not wait for the WBC)• NICE recommend starting empirical antibiotic therapy with piperacillin with tazobactam (Tazocin) immediately• If patient is still febrile and unwell after 48 hours \rightarrow an alternative antibiotic such as meropenem is often prescribed +/- vancomycin• If patient is not responding after 4-6 days \rightarrow order investigations for fungal infections, rather than just starting antifungal therapy blindly
44.	<p>A 67 year old man who is currently on chemotherapy treatment for a malignancy suddenly develops febrile neutropenia. He has been commenced on tazocin and gentamicin. He has recently commenced meropenem but his fever still remains at 39°C on the 3rd day. Two blood tests and urine cultures have come back negative. Investigation done this morning show:</p> <p>Haemoglobin 104 g/L White cell count $0.5 \times 10^9/\text{L}$ Platelets $35 \times 10^9/\text{L}$</p> <p>What is the SINGLE best management?</p> <p>A. Continue IV antibiotics and add oral antifungals B. Continue IV antibiotics and add IV antifungals C. Stop antibiotics D. Continue present antibiotics E. Repeat blood culture</p> <p>Continue inpatient empiric antibiotic therapy in all patients who have unresponsive fever unless an alternative cause of fever is likely. It is quite the norm to add on IV antifungals for neutropenic sepsis as well.</p> <p>If there was an option to order investigations for fungal infections in this question, that would be correct as well.</p> <p>General Management for Neutropenic Sepsis</p>



	<ul style="list-style-type: none">• antibiotics must be started immediately (do not wait for the WBC)• NICE recommend starting empirical antibiotic therapy with piperacillin with tazobactam (Tazocin) immediately• if patient is still febrile and unwell after 48 hours → an alternative antibiotic such as meropenem is often prescribed +/- vancomycin• if patient is not responding after 4-6 days → order investigations for fungal infections, rather than just starting antifungal therapy blindly
45.	<p>A 69 year old woman lives in a nursing home following a stroke. She recently developed a reddish scaly rash on her trunk. She has many scratch marks on her limbs and trunk with linear burrows seen on her hands and feet. What is the SINGLE most appropriate treatment?</p> <p>A. Aqueous cream B. Chlorpheniramine C. Coal tar D. Hydrocortisone ointment E. Permethrin</p> <p>In PLAB, when you see an elderly living in a nursing home with rashes, think of scabies</p> <p>Permethrin 5% is probably the only treatment that would be asked in PLAB for scabies.</p> <p>Scabies</p> <p>Scabies is a parasitic skin infection characterized by superficial burrows, intense pruritus, and secondary infections</p> <p>Aetiology</p> <p>Sarcoptes scabiei. Transmitted by skin-to-skin contact.</p> <p>Clinical Findings</p> <ul style="list-style-type: none">• Pruritus, burrows, papules, commonly found on flexor surfaces of wrists, finger webs, elbows, axillary folds, areola of the breast in women, and genitals of the males. Scabies digs into the skin at the skin folds.• Patients who are immunocompromised or debilitated may develop a severe form of scabies called Norwegian scabies (crusted scabies). These patients present with diffuse cutaneous involvement with crusting and malodorous discharge. <p>Treatment</p> <ul style="list-style-type: none">• Scabies treatment is with permethrin 5% which is first-line• (malathion 0.5% is second-line)• Note: all household and close physical contacts should be treated at the same time, even if asymptomatic



46.	<p>An 82 year old man was brought into the emergency department with a low level of consciousness. His wife mentions that he had a severe headache for the last 20 hours and was very sensitive to light. He has a temperature of 39.0°C, a pulse of 118 beats/minute, a blood pressure of 80/55 mmHg and a respiratory rate of 32 breaths/minute. He is conscious but confused. Kernig's sign was positive. High flow oxygen and IV fluids was immediately started. What is the SINGLE most appropriate immediate management?</p> <p>A. Intravenous antibiotic B. Lumbar puncture C. Computed tomography brain scan D. Head magnetic resonance imaging E. Blood culture</p> <p>This man is having meningitis. Treatment for meningitis should be started before doing any investigations due to the seriousness of the disease.</p> <p>In a hospital setting, give intravenous third generation cephalosporin antibiotics (ceftriaxone or cefotaxime)</p>
47.	<p>A 33 year old woman has numerous painful ulcers on her vulva. She is sexually active and has multiple partners in the past. What is the SINGLE most likely cause of her ulcers?</p> <p>A. Chlamydia B. Trichomonas vaginalis C. Gardenella D. Herpes simplex virus E. Epstein barr virus</p> <p>The probable diagnosis here is genital herpes.</p> <p>Genital Herpes</p> <ul style="list-style-type: none">• may be asymptomatic or may remain dormant for months or even years. When symptoms occur soon after a person is infected, they tend to be severe. They may start as multiple small blisters that eventually break open and produce raw, painful sores that scab and heal over within a few weeks. The blisters and sores may be accompanied by flu-like symptoms with fever and swollen lymph nodes.• Genital herpes can be a chronic, lifelong infection. Majority of cases are caused by HSV-2 (HSV-1 is taking over). <p>Signs: Flu-like prodrome, then grouped vesicles/papules develop around genitals. These burst, and form shallow ulcers.</p> <p>Management: Oral aciclovir. Some patients with frequent exacerbations may benefit from longer term acyclovir</p>



48. A 15 year old boy had a patchy rash over his body following antibiotic treatment for sore throat. On examination, he has cervical lymph node enlargement and mild splenomegaly which is tender on palpation. What is the SINGLE most likely antibiotic that would have caused the rash?

- A. Ampicillin**
B. Erythromycin
C. Cefuroxime
D. Metronidazole
E. Tetracycline

A maculopapular, pruritic rash develops in around 99% of patients who take ampicillin/amoxicillin whilst they have infectious mononucleosis.

Infectious Mononucleosis

Infectious mononucleosis (glandular fever) is caused by the Epstein-Barr virus (also known as human herpesvirus 4, HHV-4). It is most common in adolescents and young adults.

Features

- Sore throat; tonsillar enlargement is common, classically exudative and may be massive
- Palatal petechiae
- Lymphadenopathy, especially neck glands
- Pyrexia
- Malaise
- Splenomegaly - may rarely predispose to splenic rupture
- A maculopapular, pruritic rash develops in around 99% of patients who take ampicillin/amoxicillin whilst they have infectious mononucleosis. Thus, they should not be given in any patient who might have infectious mononucleosis.

Diagnosis

- heterophil antibody test (Monospot test) (Paul Bunnell)

Other investigations:

- FBC
- raised white cell count with lymphocytosis and a relative atypical lymphocyte count greater than 20%
- ESR is elevated

Management is supportive

Simple analgesia for any aches or pains



49.	<p>A 38 year old female, 32 weeks pregnant presents with thick white marks on the inside of her mouth for 3 weeks. Her mouth including her tongue appears inflamed on examination. She smokes 20 cigarettes a day despite advice to quit. What is the SINGLE most likely diagnosis?</p> <p>A. Lichen planus B. Aphthous ulcer C. Molluscum contagiosum D. Candidiasis E. Leukoplakia</p> <p>Smokers are more likely to develop oral thrush. The history of pregnancy is not too relevant. But the idea that the question writers want to portray is that in pregnancy, the immune system is weakened. Thus candidiasis is more likely.</p> <p>Lichen planus may have lace like appearance and not thick white mark like in this case.</p> <p>Aphthous ulcer is typically round or oval sores or ulcers inside the mouth.</p> <p>Molluscum contagiosum present as firm, smooth, umbilicated papules on the trunk or extremities and not in the mouth like in the given stem.</p> <p>Leukoplakia is an option but it is less likely than oral candidiasis. They may sometimes give a history of a white lesion in the mouth that cannot be rubbed off.</p> <p>Pseudomembranous oral candidiasis (oral thrush)</p> <ul style="list-style-type: none">• Curd-like white patches in the mouth. The white pseudomembrane can be easily removed, leaving an underlying red base that is usually painless (in contrast with leukoplakia, which cannot be rubbed off)• Cracks can occasionally be seen at the corners of the mouth
50.	<p>A 38 year old woman recently returned from Bangkok. She did not have any malaria prophylaxis before leaving the UK on her trip. She presents with a high fever, generalised macular blanching rash, tender and swollen cervical lymphadenopathy and generalised myalgia. What is the SINGLE most likely diagnosis?</p> <p>A. Cerebral Malaria B. Dengue Fever C. Typhoid D. Diphtheria E. Lymphoma</p> <p>In PLAB 1, these are the most important epidemiology points that you need to know for infectious diseases</p> <ul style="list-style-type: none">• Malaria: Africa• Dengue fever: Far East Asia



	<ul style="list-style-type: none">• Typhoid: South America• Diphtheria: India <p>Even if you did not know this, the signs and symptoms point toward dengue fever. Here is a summarised list of the presentation of these diseases. Remember to tie in the signs and symptoms with the travel history:</p> <ul style="list-style-type: none">• Malaria: fever, chills, rigors• Dengue Fever: generalised rash, biphasic fever, retro-orbital pain• Typhoid: severe headache, patients adopt a crouching position• Diphtheria: presents with flu-like symptoms initially, enlarged anterior cervical lymph nodes
51.	<p>A 5 year old child started having a fever two days ago associated with neck stiffness, chills, impaired consciousness and vomiting. He has a history of travel with his parents to Ghana and returned 6 weeks ago. Before he left to Ghana, he was started on malaria prophylaxis. A full blood count shows that the young child is anaemic. What is the SINGLE most likely diagnosis?</p> <p>A. Cerebral abscess B. Cerebral malaria C. Meningococcal meningitis D. Subarachnoid haemorrhage E. Cerebral tumour</p> <p>Malaria prophylaxis does not provide full protection against all subtypes of malarial parasites.</p> <p>The two top choices given here is cerebral malaria and meningococcal meningitis. The full blood count showing anaemia points towards cerebral malaria as the diagnosis rather than meningococcal meningitis.</p> <p>Impaired consciousness is one of the signs of cerebral malaria. There are no specific symptoms of malaria so it is critical to consider the possibility of the diagnosis. Most missed malarial infections are wrongly diagnosed as nonspecific viral infections, influenza, gastroenteritis or hepatitis. Children, in particular, are more likely to present with nonspecific symptoms (fever, lethargy, malaise, somnolence) and to have gastrointestinal symptoms.</p> <p>It is important to consider malaria in every febrile patient returning from a malaria-endemic area within the last year, especially in the previous three months, regardless of whether they have taken chemoprophylaxis, as prompt recognition and appropriate treatment will improve prognosis and prevent deaths.</p>



52.	<p>A 15 year old girl presents to A&E with headache, vomiting, neck stiffness and photophobia. No rash was seen on examination. Her temperature is 38.3°C, heart rate is 90 bpm and respiratory rate is 18/min. What is the SINGLE most appropriate investigation?</p> <p>A. Blood culture B. Blood glucose C. Lumbar puncture D. Chest X-ray E. CT head</p> <p>She has signs of meningitis.</p> <p>If the patient has got a rash, then perform blood culture as the diagnosis is most likely meningococcal septicaemia. The causative organism is <i>Neisseria meningitidis</i>.</p> <p>If there is no rash then a lumbar puncture would be a better answer, but this can only be done if there are no signs of raised intracranial pressure.</p> <p>Generally, treatment for meningitis should be started before doing any investigations due to the seriousness of the disease.</p>
53.	<p>A 32 year old man has recently been to Thailand and returned with cervical lymphadenopathy, malaise and a mild fever. What is the SINGLE most likely infectious agent causing his symptoms?</p> <p>A. Human immunodeficiency virus (HIV) B. <i>Treponema pallidum</i> C. <i>Salmonella typhi</i> D. Measles E. Epstein-Barr virus</p> <p>Cervical lymphadenopathy is one of the main features of infectious mononucleosis.</p> <p>If this was a HIV infection, there would be more of a generalized lymphadenopathy.</p> <p>Infectious Mononucleosis</p> <p>Infectious mononucleosis (glandular fever) is caused by the Epstein-Barr virus (also known as human herpesvirus 4, HHV-4). It is most common in adolescents and young adults.</p> <p>Features</p> <ul style="list-style-type: none">• Sore throat; tonsillar enlargement is common, classically exudative and may be massive• Palatal petechiae• Lymphadenopathy, especially neck glands• Pyrexia• Malaise• Splenomegaly - may rarely predispose to splenic rupture



	<ul style="list-style-type: none">• A maculopapular, pruritic rash develops in around 99% of patients who take ampicillin/amoxicillin whilst they have infectious mononucleosis. Thus, they should not be given in any patient who might have infectious mononucleosis. <p>Diagnosis</p> <ul style="list-style-type: none">• heterophil antibody test (Monospot test) (Paul Bunnell) <p>Other investigations:</p> <ul style="list-style-type: none">• FBC• raised white cell count with lymphocytosis and a relative atypical lymphocyte count greater than 20%• ESR is elevated <p>Management is supportive Simple analgesia for any aches or pains</p>
54.	<p>A 33 year old African woman presents with episodes of fever with rigors and chills for the past year. Blood film shows ring form plasmodium with schuffner's dots in red blood cells. What is the SINGLE most appropriate drug to eradicate this infection?</p> <p>A. Mefloquine B. Doxycycline C. Proguanil D. Quinine E. Primaquine</p> <p>Schuffner's dots are exclusively found in Plasmodium ovale and Plasmodium vivax. Thus primaquine should be used to eradicate them. The fact that they gave you the ethnicity, is another clue. Plasmodium ovale typically comes from Africa.</p> <p>Plasmodium vivax → Fever spikes every 48 hours.</p> <p>Plasmodium ovale → Similar to P. vivax, except untreated infection lasts less long.</p> <p>Both may produce true relapses by new invasion of the blood from latent hypnozoites in the liver, up to a few years after complete clearance of parasites from the blood.</p> <p>Ovale and vivax malaria have a hypnozoite stage and may therefore relapse following treatment.</p> <p>Treatment of non-falciparum malaria</p> <ul style="list-style-type: none">• Almost always chloroquine sensitive thus chloroquine is the drug of choice• If chloroquine fails, resistant P. vivax can be treated with quinine• Primaquine is used to destroy liver stage parasites and prevent relapse



55.	<p>A 13 year old girl complains of a 3 day history of hoarseness of voice associated with dry cough. She presents with a fever and malaise. On direct laryngoscopy, her vocal cords are seen to be grossly oedematous. What is the SINGLE next most appropriate investigation?</p> <p>A. None required B. Sputum for acid-fast bacilli C. Blood culture D. Cervical spine X-ray E. Bronchoscopy</p> <p>This is a likely case of a common cold. No further investigations or management is required.</p>
56.	<p>A 3 year old boy presents with a 2 day history of being unwell. He has a 2 hour old rash made up of urticarial and purpuric spots. His conscious level is decreased. He has a blood pressure of 80/50 mmHg, a respiratory rate of 30 breaths/minute, oxygen saturations of 94%, a temperature of 39°C, and a capillary refill time of 3 second. Urine dipstick was found to be negative. What is the SINGLE investigations most likely to lead to diagnosis?</p> <p>A. Blood culture and sensitivity B. Erythrocyte sedimentation rate (ESR) C. Chest X-ray D. Urine for culture and sensitivity E. Cerebrospinal fluid analysis</p> <p>A very straight forward question. The child is clearly septic with the likely diagnosis of meningococcal septicaemia. Blood culture is the investigation of choice.</p>
57.	<p>A 35 week pregnant woman presents to the Antenatal Day Unit with productive cough and rigors. This is her first pregnancy and there have been no issues to date. She returned from Uganda two weeks ago from a family visit. She is suspected to have respiratory tuberculosis. What is the SINGLE most likely medication that should NOT be used in pregnancy?</p> <p>A. Ethambutol B. Pyrazinamide C. Streptomycin D. Isoniazid E. Rifampicin</p> <p>The standard unsupervised six month treatment regimen may be used during pregnancy. Streptomycin should not be used in pregnancy because it has been shown to have harmful effects on the fetus.</p> <p>This patient should be treated as the risks of untreated tuberculosis are greater to pregnancy than the medication. The risk towards the pregnancy are perinatal infection, low birth weight or growth retardation, and premature delivery. Treatment for tuberculosis is the same for pregnant and non-pregnant status: 4 drug therapy (Isoniazid, Rifampicin, Pyrazinamide, Ethambutol).</p>



58.	<p>A 32 year old breast feeding mother has a painful, swollen, hard lump in her right breast which developed 2 weeks after having a normal vaginal delivery. She has a temperature of 38.1°C. A breast abscess is suspected. What is the SINGLE most likely organism?</p> <p>A. Staphylococcus aureus B. Staphylococcus albus C. Streptococcus agalactiae D. Streptococcus pyogenes E. Staphylococcus epidermidis</p> <p>Infectious mastitis occurs when accumulated milk allows bacteria to grow. It typically develops within the first few weeks of breastfeeding. If treatment is delayed it may result in a breast abscess like in this case. The usual infecting organism is Staphylococcus aureus, although it may also be caused by Staphylococcus albus and streptococci.</p> <p>If a breast abscess forms, advise the patient to discard the milk if it is pus-like. Flucloxacillin is usually the treatment of choice. It is safe for baby. Incision and drainage of abscess with cavity packed open with gauze is recommended if the underlying skin is thin or necrotic.</p> <p>If the patient has mastitis, we would still encourage the patient to breastfeed as the blocked milk ducts may clear more quickly by breastfeeding as it keeps milk flowing. However, if the patient has an abscess, in some cases, breast-feeding may have to cease until the abscess is successfully treated.</p>
59.	<p>A 38 year old woman presents with dysphagia and a lump on her neck. On examination, there is a 5 cm by 4 cm erythematous neck swelling lateral to the thyroid cartilage. She has a temperature of 38.9°C, a respiratory rate of 28 breaths/minute and a heart rate of 110 beats/minute. What is the SINGLE most appropriate action?</p> <p>A. Thyroid function test B. Paracetamol, Ibuprofen and broad spectrum antibiotics orally C. X-ray of neck D. Endoscopic diverticulotomy E. Intravenous antibiotics, incision and drainage</p> <p>Superficial neck abscesses are usually the result of an infection in a lymph node in the neck (lymphadenitis) turning into an abscess. Staphylococcus aureus is usually the culprit. Antibiotics can initially be given and if the abscess does not resolve then it may need to be drained. However, given this stem, it is clear that she is unwell and possibly septic and thus oral antibiotics would not be a good option here. Antibiotics need to be given intravenously, and the abscess needs to be drained.</p> <p>Most cases of neck abscess require patients to be hospitalized and intravenous antibiotics to be given. Analgesia is also important to relieve pain from the abscess but the option to give oral antibiotics in combination with pain relief is an incorrect one in a scenario where the patient is potentially septic.</p>



	<p>Draining of a superficial neck abscess is a simple procedure and is done under general anesthesia. Incision and drainage is important as the pus sample collected from the drainage is sent to the laboratory for culture and sensitivity. After the organism is identified, specific antibiotics can be used accordingly.</p>
60.	<p>A 45 year old man has developed an annular rash with a scaly edge on his thigh. The rash has been spreading over the last 3 weeks. He also complains of general aches and pains. What is the SINGLE most appropriate investigation?</p> <p>A. Antinuclear antibodies B. Biopsy of lesion C. Skin scrap for mycology D. Antibodies to <i>Borrelia recurrentis</i> E. Antibodies to <i>Borrelia burgdorferi</i></p> <p>The rash described is one of Lyme disease.</p> <p>Lyme disease</p> <p>Lyme disease is caused by the spirochaete <i>Borrelia burgdorferi</i> and is spread by ticks (<i>Ixodes scapularis</i> tick)</p> <p>Tick needs at least 24 hours of attachment to transmit the <i>Borrelia burgdorferi</i> organism.</p> <p>Clinical presentation</p> <p>Symptoms begin 3-30 days after the bite of the tick. Eighty percent of patients develop the erythema migrans rash at the site of the bite. (An erythematous patch, which may enlarge in the first few days) Even without treatment, the rash resolves in several weeks. A flu like illness with fever, chills, and myalgias occurs in half of patients.</p> <p>Neurologic symptoms develop several weeks later. This is most commonly paralysis of the seventh cranial nerve (facial paralysis) and may be bilateral. Meningitis, and encephalitis may develop as well.</p> <p>Cardiac symptoms develop a minority of people and is most commonly an AV heart block or Myocarditis</p> <p>Joint involvement may develop but this is months to years later</p> <p>Investigation</p> <p>Serology: antibodies to <i>Borrelia burgdorferi</i></p> <p>Management</p> <ul style="list-style-type: none">• Doxycycline if early disease. Amoxicillin is an alternative if doxycycline is contraindicated (e.g. pregnancy)• Ceftriaxone if disseminated disease



61.	<p>A 33 year old known drug abuser has swelling and erythema in his arm where he injects. He has a fever and appears sick. He is asking for morphine as the pain is severe and seems to be disproportionate to the clinical appearance. Bullae is seen on the skin of his arm. He was started on intravenous flucloxacillin but the infection has not responded to antibiotics and seems to be worsening. What is the SINGLE most likely diagnosis?</p> <p>A. Cellulitis B. Erysipelas C. Pyoderma gangrenosum D. Penicillin allergic reaction E. Necrotising fasciitis</p> <p>Necrotising fasciitis Necrotising fasciitis is a life-threatening infection which rapidly spreads caused predominantly by group A β-haemolytic Streptococci. It is defined as necrotising infection involving any layer of the deep soft tissue compartment (dermis, subcutaneous tissue, fascia or muscle).</p> <p>Risk factors</p> <ul style="list-style-type: none">• Intramuscular or subcutaneous drug injection• Diabetes• Immunosuppression <p>Presentation → According to days</p> <ul style="list-style-type: none">• Day 1 to 2<ul style="list-style-type: none">○ Swelling, erythema, pain over affected area (mimics cellulitis)○ Margins of infection are poorly defined, with tenderness extending beyond the apparent area of involvement (unlike cellulitis)○ No response to antibiotics (unlike cellulitis)• Day 2 to 4<ul style="list-style-type: none">○ Bullae, indicating skin ischaemia (unlike cellulitis)○ Skin progresses to grey colour due to necrosis (unlike cellulitis)○ Subcutaneous tissues have a wooden-hard feel (unlike cellulitis)○ From intense pain to anaesthesia like pain → due to nerves being destroyed• Day 4 to 5<ul style="list-style-type: none">○ Septic shock develops <p><i>As necrotising infection is deep within the skin and is not visible it is often difficult to diagnose. One important notable feature is if the pain is severe, and disproportionate to the physical signs, think necrotising fasciitis.</i></p>
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62. A 34 year old man who has a new diagnosis of haematological malignancy presents in the emergency department with bruises all over his abdomen. He has a temperature of 38.6°C. His respiratory rate is 25 breaths/minute, heart rate is 102 beats/minute and blood pressure is 80/50 mmHg. His blood results show:
- White cell count $23 \times 10^9/L$
Neutrophils $0.4 \times 10^9/L$
- He is commenced on meropenem. What is the SINGLE most likely diagnosis?
- A. Septic shock
B. Neutropenic sepsis
C. Hepatitis
D. Cytomegalovirus
E. HIV
- Neutropenic sepsis is a potentially fatal complication of anticancer treatment (particularly chemotherapy).
- Febrile neutropenia is defined as:**
- An oral temperature $\geq 38.5^\circ\text{C}$ or two consecutive readings of $\geq 38.0^\circ\text{C}$ for two hours and
 - An absolute neutrophil count $\leq 0.5 \times 10^9/L$
- Febrile neutropenia should also be suspected in:**
- Recipients of chemotherapy within the last 4 weeks
 - Recipients of bone marrow transplant within the last year who are febrile
- Treat these patients, pending confirmation of neutrophil count, to avoid any delays in antibiotic administration.
- General Management for Neutropenic Sepsis**
- Antibiotics must be started immediately (do not wait for the WBC)
 - NICE recommend starting empirical antibiotic therapy with piperacillin with tazobactam (Tazocin) immediately
 - if patient is still febrile and unwell after 48 hours → an alternative antibiotic such as meropenem is often prescribed +/- vancomycin
 - if patient is not responding after 4-6 days → order investigations for fungal infections, rather than just starting antifungal therapy blindly



63. A 7 year old child is being investigated for active respiratory tuberculosis. He has dry cough and is unable to produce sputum. His parents have been informed about the possibility of a bronchoalveolar lavage which can be useful in diagnosis tuberculosis however the parents decline this invasive test. What is the SINGLE next method to acquire a sample to diagnose tuberculosis?

- A. Venipuncture
- B. Throat swab
- C. Gastric lavage**
- D. Liver biopsy
- E. Lumbar puncture

The diagnosis of tuberculosis is usually made in one of three ways:

1. Smear of sputum → Staining with Ziehl-Neelsen (ZN) stain and microscopy for acid-fast bacilli
2. Culture of sputum → Takes 4-8 weeks due to slow bacterial growth
3. Histology with caseating granulomas on biopsy

This young child is unable to cough up sputum and thus there is no sample to perform a stain for Acid-Fast Bacilli (AFB). Bronchoalveolar lavage would be the next step to attempt to acquire a sample given the high index of suspicion for tuberculosis. As the parents of the child have declined this procedure, gastric lavage would be able to acquire a sample. Some patients with tuberculosis do not raise any sputum but instead swallow small amounts of sputum. Gastric washings reflect TB swallowed overnight. It is rarely performed if bronchoscopy is readily available but it is commonly used in children.

Tuberculosis

Tuberculosis (TB) is an infection caused by *Mycobacterium tuberculosis* that most commonly affects the lungs.

Primary tuberculosis

- Primary infection of the lungs
- A small lung lesion known as a Ghon focus develops
- Primary infection is usually asymptomatic

Secondary (post-primary) tuberculosis

- Occurs if the host becomes immunocompromised the initial infection may become reactivated
- Presentation of secondary infection is variable and often nonspecific

Presentation

- Fatigue, malaise
- Chronic, productive cough
- Night sweats
- Weight loss



	<p>Diagnosis</p> <ul style="list-style-type: none">• X-ray<ul style="list-style-type: none">◦ Upper lobe infiltrates with cavitation• Stain for Acid-Fast Bacilli (AFB)• Culture is most specific but may take weeks <p><i>Do not use Mantoux test to diagnose acute cases of TB</i></p> <p>Screening</p> <ul style="list-style-type: none">• Mantoux testing → to diagnose latent tuberculosis infection<ul style="list-style-type: none">◦ Used in people who are either household contacts, co-workers, or school contacts of patients with active tuberculosis• Interferon Gamma testing<ul style="list-style-type: none">◦ Used in patients who have had a bacillus Calmette-Guérin (BCG) vaccine. <i>This is because Mantoux test may be positive in patients who have had a BCG vaccine.</i> <p>Management of active tuberculosis</p> <ul style="list-style-type: none">• Initial phase - first 2 months → <i>Mnemonic (RIPE)</i><ul style="list-style-type: none">◦ Rifampicin◦ Isoniazid◦ Pyrazinamide◦ Ethambutol◦• Continuation phase - next 4 months<ul style="list-style-type: none">◦ Rifampicin◦ Isoniazid <p>Mnemonic: I saw a red pyre</p> <ul style="list-style-type: none">• I SAw - ISOniazid• Red - Rifampicin• PyrE - Pyrazinamide, Ethambutol
64.	<p>A 30 year old homeless lady has cough, sputum and a fever. She complains of night sweats and has lost 13 kg in the past 6 months. A chest X-ray was performed which showed apical involvement with infiltrates and cavitation in the upper lobe of the right lung. What is the next SINGLE most appropriate test to perform?</p> <p>A. Acid-Fast Bacilli smear B. Mantoux test C. Interferon Gamma test D. Bronchoscopy E. Computed tomography</p> <p>It is important to remember the risk factors of tuberculosis as well as how it presents.</p>



Weight loss is common because of the chronicity of the infection. Night sweats also occurs with TB.

Homeless people are at higher risk of TB as they often live in overcrowded areas and have poor housing which encourage the spread of TB. It is estimated that homeless are at 150 times at risk of TB than the UK average.

Stain for Acid-Fast Bacilli (AFB) is the most appropriate next test.

Mantoux test and interferon gamma test are used to diagnose latent tuberculosis infection and not acute cases of tuberculosis.

Bronchoscopy is sometimes used when there is a need to obtain bronchoalveolar lavage or lymph node samples. It is used if a patient has non-productive cough or an unhelpful sputum culture but the physicians still have a high index of clinical suspicion for tuberculosis.

Tuberculosis

Tuberculosis (TB) is an infection caused by *Mycobacterium tuberculosis* that most commonly affects the lungs.

Primary tuberculosis

- Primary infection of the lungs
- A small lung lesion known as a Ghon focus develops
- Primary infection is usually asymptomatic

Secondary (post-primary) tuberculosis

- Occurs if the host becomes immunocompromised the initial infection may become reactivated
- Presentation of secondary infection is variable and often nonspecific

Presentation

- Fatigue, malaise
- Chronic, productive cough
- Night sweats
- Weight loss

Diagnosis

- X-ray
 - Upper lobe infiltrates with cavitation
- Stain for Acid-Fast Bacilli (AFB)
- Culture is most specific but may take weeks

Do not use Mantoux test to diagnose acute cases of TB

Screening

- Mantoux testing → to diagnose latent tuberculosis infection



	<ul style="list-style-type: none">○ Used in people who are either household contacts, co-workers, or school contacts of patients with active tuberculosis• Interferon Gamma testing<ul style="list-style-type: none">○ Used in patients who have had a bacillus Calmette-Guérin (BCG) vaccine. <i>This is because Mantoux test may be positive in patients who have had a BCG vaccine.</i> <p>Management of active tuberculosis</p> <ul style="list-style-type: none">• Initial phase - first 2 months → <i>Mnemonic (RIPE)</i><ul style="list-style-type: none">○ Rifampicin○ Isoniazid○ Pyrazinamide○ Ethambutol○• Continuation phase - next 4 months<ul style="list-style-type: none">○ Rifampicin○ Isoniazid <p>Mnemonic: I saw a red pyre</p> <ul style="list-style-type: none">• I SAw - ISOniazid• Red - Rifampicin• PyrE - Pyrazinamide, Ethambutol
65.	<p>A 23 year old homeless smoker has an ongoing productive cough. She takes recreational drugs and looks malnourished. She has lost 15 kg in the past year. There are several nontender swellings on both sides of her neck. On examination, she has crackles in her right upper lobe but is otherwise well and stable. A chest X-ray reveals upper lobe infiltrates with cavitation on the right lung. What is the SINGLE most likely diagnosis?</p> <p>A. Aspergillosis B. Klebsiella pneumoniae C. Pneumococcal pneumonia D. Bronchogenic Carcinoma E. Tuberculosis</p> <p>It is important to remember the risk factors of tuberculosis as well as how it presents.</p> <p>Weight loss is seen in tuberculosis. One of the signs in tuberculosis is lymphadenopathy particularly cervical which is seen in this stem.</p> <p>The examination findings and chest X-ray are consistent with almost every option given in the question. But only tuberculosis and lung cancer would have the associated weight loss. Given the age of only being 23, tuberculosis is the likely answer.</p> <p>Risk factors for TB which are included in this stem are:</p> <ul style="list-style-type: none">• Homeless• Drug abuser• Smoker



The reason for homeless and drug abusers being at risk of TB is that they often live in overcrowded areas and have poor housing which encourage the spread of TB. It is estimated that homeless are at 150 times at risk of TB than the UK average.

Tuberculosis

Tuberculosis (TB) is an infection caused by *Mycobacterium tuberculosis* that most commonly affects the lungs.

Primary tuberculosis

- Primary infection of the lungs
- A small lung lesion known as a Ghon focus develops
- Primary infection is usually asymptomatic

Secondary (post-primary) tuberculosis

- Occurs if the host becomes immunocompromised the initial infection may become reactivated
- Presentation of secondary infection is variable and often nonspecific

Presentation

- Fatigue, malaise
- Chronic, productive cough
- Night sweats
- Weight loss

Diagnosis

- X-ray
 - Upper lobe infiltrates with cavitation
- Stain for Acid-Fast Bacilli (AFB)
- Culture is most specific but may take weeks

Do not use Mantoux test to diagnose acute cases of TB

Screening

- Mantoux testing → to diagnose latent tuberculosis infection
 - Used in people who are either household contacts, co-workers, or school contacts of patients with active tuberculosis
- Interferon Gamma testing
 - Used in patients who have had a bacillus Calmette-Guérin (BCG) vaccine. *This is because Mantoux test may be positive in patients who have had a BCG vaccine.*

Management of active tuberculosis

- Initial phase - first 2 months → *Mnemonic (RIPE)*
 - Rifampicin
 - Isoniazid
 - Pyrazinamide



	<ul style="list-style-type: none">○ Ethambutol○• Continuation phase - next 4 months<ul style="list-style-type: none">○ Rifampicin○ Isoniazid <p>Mnemonic: <i>I saw a red pyre</i></p> <ul style="list-style-type: none">• I SAw - ISOniazid• Red - Rifampicin• Pyre - Pyrazinamide, Ethambutol
66.	<p>A 6 week infant has been diagnosed as HIV positive. What is the SINGLE most appropriate immunization plan for the infant?</p> <p>A. Avoid MMR vaccinations and tetanus vaccinations B. Administer all vaccines as scheduled except live attenuated vaccines C. Administer only BCG vaccine D. Administer all vaccines as scheduled except BCG vaccine E. Avoid influenza vaccinations</p> <p>BCG should not be given to HIV positive patients. All other vaccinations can be given. MMR vaccinations should not be given if the CD4 count is below 200 cells/mL.</p>
67.	<p>A 12 month old child who is HIV positive is due for his measles, mumps, and rubella (MMR) vaccine. His CD4 count is more than 200 cells/mL. What is the SINGLE most appropriate action?</p> <p>A. Defer immunization for 2 weeks B. Advise not to have MMR vaccine C. Administer half dose of MMR vaccine D. Administer paracetamol with MMR vaccine E. Proceed with administration of MMR vaccination</p> <p>Even though measles, mumps, and rubella (MMR) vaccine contains live attenuated viruses, it is sometimes recommended for people with HIV/AIDS. It is contraindicated if the patient is severely immunocompromised including a HIV-infected patient with CD4 counts less than 200 cells/mL.</p>
68.	<p>A 70 year old diabetic woman has a red swelling over her right foot. Her foot is erythematous, glossy, warm and tender to touch. She is a heavy smoker. What SINGLE complication is this woman likely to develop?</p> <p>A. Osteomyelitis B. Septicaemia C. Ulcers D. Gangrene E. Necrotising fasciitis</p>



	<p>This patient has clinical features of cellulitis. One of the complications is gangrene. Others like necrotising fasciitis, septicaemia and osteomyelitis can also occur but are less common.</p> <p>Gangrene occurs when there is insufficient blood supply resulting in necrosis. It is most common in the lower limbs. There are two broad types of gangrene - Dry and Wet. One of the well known causes of the dry gangrene is peripheral arterial disease and it is especially seen in smokers and patients with diabetes mellitus.</p>
69.	<p>A 58 year old woman attends clinic for advice as her grandson who lives with her has developed chicken pox with the rash appearing 2 days ago. She is currently undergoing chemotherapy for breast cancer and has been using long term corticosteroids to manage her inflammatory bowel disease. She has never had chicken pox before. On examination, there is no evidence of any rash. What is the SINGLE most appropriate management?</p> <p>A. Intravenous aciclovir B. Oral aciclovir C. Immunisation against varicella zoster D. Varicella zoster immunoglobulin E. Reassurance</p> <p>This patient is clearly immunocompromised. She is on chemotherapy AND she is taking long term steroids. She is at a high risk of developing severe complications from varicella infection. As she is currently asymptomatic, the best management would be immunoglobulins. If she had developed the infection, then we would administer aciclovir.</p> <p>Chickenpox</p> <ul style="list-style-type: none">• Caused by primary infection with varicella-zoster virus. Reactivation of the dormant virus after a bout of chickenpox leads to herpes zoster (shingles)• Highly infectious and its spread is via the respiratory route. Most chickenpox is mild to moderate and self-limiting but serious complications can occur in immunocompromised patients. <p>Infectivity → 4 days before rash and until 5 days after the rash first appeared Incubation period → 10 to 21 days</p> <p>Clinical features</p> <ul style="list-style-type: none">• Pyrexia → Often the first feature• Itchy, rash starting on head, chest and back before spreading• Lesions are usually most concentrated on the chest and back• Initially rash is macular → then papular → then vesicular → then dry crust <p>Clinical features tend to be more severe in adults</p> <p>Management</p>



	<ul style="list-style-type: none">• Pruritus → managed by sedating antihistamines and emollients. While some sources mention that calamine lotion is no longer recommended, as when it dries it ceases to be effective, it is still used and the advice that is given is to reapply it regularly• Administer varicella zoster immunoglobulin (VZIG) to:<ul style="list-style-type: none">○ Immunocompromised with exposure or○ Newborn with peripartum exposure or○ Pregnant women with exposure and with no varicella antibodies• Administer aciclovir to:<ul style="list-style-type: none">○ Pregnant women who develop chicken pox○ Immunocompromised who develop chicken pox
70.	<p>A 5 year old boy was brought to his GP with a temperature of 38.8°C and numerous pruritic vesicles on his chest and back. What is the SINGLE most appropriate management?</p> <p>A. Intravenous aciclovir B. Oral aciclovir C. Oral antibiotics D. Topical steroids E. Reassurance</p> <p>The diagnosis here is chicken pox. The management here would involve reassurance, and supportive management like paracetamol for the fever, antihistamine and calamine lotion for the pruritus.</p> <p>Chickenpox</p> <ul style="list-style-type: none">• Caused by primary infection with varicella-zoster virus. Reactivation of the dormant virus after a bout of chickenpox leads to herpes zoster (shingles)• Highly infectious and its spread is via the respiratory route. Most chickenpox is mild to moderate and self-limiting but serious complications can occur in immunocompromised patients. <p>Infectivity → 4 days before rash and until 5 days after the rash first appeared Incubation period → 10 to 21 days</p> <p>Clinical features</p> <ul style="list-style-type: none">• Pyrexia → Often the first feature• Itchy, rash starting on head, chest and back before spreading• Lesions are usually most concentrated on the chest and back• Initially rash is macular → then papular → then vesicular → then dry crust <p>Clinical features tend to be more severe in adults</p> <p>Management</p> <ul style="list-style-type: none">• Pruritus → managed by sedating antihistamines and emollients. While some sources mention that calamine lotion is no longer recommended, as when it dries it ceases to be effective, it is still used and the advice that is given is to reapply it regularly• Administer varicella zoster immunoglobulin (VZIG) to:



	<ul style="list-style-type: none">○ Immunocompromised with exposure or○ Newborn with peripartum exposure or○ Pregnant women with exposure and with no varicella antibodies• Administer aciclovir to:<ul style="list-style-type: none">○ Pregnant women who develop chicken pox○ Immunocompromised who develop chicken pox
71.	<p>A 24 year old male has a history of urethral discharge and dysuria. He is sexually active with other men and has had four sexual partners in the last year. He does not practice safe sex. Urethral swabs were taken which results came back positive for chlamydia. What is the SINGLE most likely complication if left untreated?</p> <p>A. Orchitis B. Balanitis C. Epididymo-orchitis D. Acute abdomen E. Erectile dysfunction</p> <p>Chlamydia is the most prevalent sexually transmitted infection in the UK and is caused by Chlamydia Trachomatis.</p> <p>Males tend to have either:</p> <ul style="list-style-type: none">• Classical urethritis with dysuria and urethral discharge or• Epididymo-orchitis presenting as unilateral testicular pain <p>Fever may also be a presenting feature in males</p>
72.	<p>A 30 year old man from Australia returned from a business trip to Indonesia 6 days ago presenting with complaints of fever, headache, vomiting, joint and muscle ache. His headache is felt behind the eyes and has been present for the past 2 days. What is the SINGLE most likely diagnosis?</p> <p>A. Malaria B. Chicken pox C. Diphtheria D. Typhoid fever E. Dengue</p> <p>Dengue is characterised by an abrupt onset of fever often accompanied by severe headache and retro-orbital pain, myalgia, arthralgia, nausea, vomiting, and abdominal pain</p> <p><i>Retro-orbital pain is a well recognized feature of dengue fever.</i></p> <p>In PLAB 1, these are the most important epidemiology points that you need to know for infectious diseases</p> <ul style="list-style-type: none">• Malaria: Africa



	<ul style="list-style-type: none">• Dengue fever: Far East Asia• Typhoid: South America• Diphtheria: India <p>Even if you did not know this, the signs and symptoms point toward dengue fever. Here is a summarised list of the presentation of these diseases. Remember to tie in the signs and symptoms with the travel history:</p> <ul style="list-style-type: none">• Malaria: fever, chills, rigors• Dengue Fever: generalised rash, biphasic fever, retro-orbital pain• Typhoid: severe headache, patients adopt a crouching position• Diphtheria: presents with flu-like symptoms initially, enlarged anterior cervical lymph nodes
73.	<p>A 20 week pregnant lady presents with intermittent fever, coughs, headaches, myalgia, gastric upset and mild confusion. She arrived from Ghana 12 days ago. She travelled there to visit her family. Before she left, she was prescribed chloroquine and proguanil and she took it as prescribed starting 1 week before entering Ghana. She is still taking chloroquine and proguanil as her doctor had asked her to continue it for 4 weeks after arriving in the United Kingdom. On examination, she has a yellowish tinge on her skin. What is the SINGLE most likely diagnosis?</p> <p>A. Malaria B. Hepatitis C. Dengue D. Influenza E. Side effects of medication</p> <p>THIS IS A SAMPLE QUESTION</p> <p>This lady has been taking malaria chemoprophylaxis but it is important to note that Malaria can still occur in people even though they take Malaria chemoprophylaxis. Chloroquine and proguanil can be used in pregnancy but these drugs are not appropriate for most areas because their effectiveness has declined, particularly in Sub-Saharan Africa.</p> <p>Evidence also suggests that pregnant women are twice as likely as non-pregnant women to be bitten by anopheline mosquitoes.</p> <p>Clinical features that are seen with Malaria include:</p> <ul style="list-style-type: none">• Intermittent fevers• Chills• Rigors• Headache• Cough• Myalgia• Gastrointestinal upset• Splenomegaly• Hepatomegaly• Jaundice



74.	<p>A 7 year old boy presented 10 hours after having a foot injury while playing football in the garden. A metal spike had gone through his shoes and pierced the bottom of his foot. His immunisations are up to date. What is the SINGLE most appropriate management?</p> <p>A. Administer antibiotics and immunoglobulins B. Administer antibiotics, immunoglobulins and vaccine C. Administer antibiotics and vaccine D. Administer immunoglobulins and vaccine E. Administer antibiotics only</p> <p>It is clear that this injury is to be considered a high risk wound. Intramuscular human tetanus immunoglobulin need to be administered. Antibiotics would also be a useful to add on here to prevent wound infection.</p> <p>Tetanus vaccine is currently given in the UK as part of the routine immunisation schedule at:</p> <ul style="list-style-type: none">• 2 months• 3 months• 4 months• 3-5 years• 13-18 years <p>If high-risk wound → Give intramuscular human tetanus immunoglobulin irrespective of whether 5 doses of tetanus vaccine have previously been given</p> <p>If incomplete or unknown vaccination → Give complete course of tetanus vaccine</p> <p>What is considered a high risk wound?</p> <ul style="list-style-type: none">• Wounds contaminated with soil• Compound fractures• Wounds containing foreign bodies• Wounds or burns in people with systemic sepsis
75.	<p>A 21 year old man has generalized skin lesions. The skin lesions consist of macular, papular and vesicles and concentrated more on his back and chest. Pinkish fluid is seen secreted from a few of the lesions. He has a temperature of 39.1°C. What is the SINGLE most appropriate medication to prescribe?</p> <p>A. Topical antibiotics B. Topical steroids C. Oral antibiotics D. Oral steroids E. Topical steroid and antibiotic gel</p> <p>The skin lesions seen in different stages are quite classical for chicken pox. As this man has a temperature of 39.1°C, it is likely that there is a secondary infection that requires oral antibiotics. Usually cases of chicken pox only require symptomatic treatment but if chicken pox</p>



blisters become infected with bacteria, they would require antibiotic treatment. With a temperature of 39.1°C, oral antibiotics is more suitable than topical.

Chickenpox

- Caused by primary infection with varicella-zoster virus. Reactivation of the dormant virus after a bout of chickenpox leads to herpes zoster (shingles)
- Highly infectious and its spread is via the respiratory route. Most chickenpox is mild to moderate and self-limiting but serious complications can occur in immunocompromised patients.

Infectivity → 4 days before rash and until 5 days after the rash first appeared

Incubation period → 10 to 21 days

Clinical features

- Pyrexia → Often the first feature
- Itchy, rash starting on head, chest and back before spreading
- Lesions are usually most concentrated on the chest and back
- Initially rash is macular → then papular → then vesicular → then dry crust

Clinical features tend to be more severe in adults

Management

- Pruritus → managed by sedating antihistamines and emollients. While some sources mention that calamine lotion is no longer recommended, as when it dries it ceases to be effective, it is still used and the advice that is given is to reapply it regularly
- Administer varicella zoster immunoglobulin (VZIG) to:
 - Immunocompromised with exposure or
 - Newborn with peripartum exposure or
 - Pregnant women with exposure and with no varicella antibodies
- Administer aciclovir to:
 - Pregnant women who develop chicken pox
 - Immunocompromised who develop chicken pox

76. A 33 year old man has complains of dysuria and three tender penile ulcers. He is sexually active and does not use any protection. What is the SINGLE most likely diagnosis?

- A. Chlamydia infection
- B. Gonorrhea infection
- C. Primary syphilis
- D. Trichomoniasis
- E. Herpes infection**

Genital herpes simplex which is caused by herpes simplex virus may present with painful multiple ulcers and also dysuria.

Syphilis ulcers are usually painless and thus is not the correct answer.



Genital Herpes

- may be asymptomatic or may remain dormant for months or even years. When symptoms occur soon after a person is infected, they tend to be severe. They may start as multiple small blisters that eventually break open and produce raw, painful sores that scab and heal over within a few weeks. The blisters and sores may be accompanied by flu-like symptoms with fever and swollen lymph nodes.
- Genital herpes can be a chronic, lifelong infection. Majority of cases are caused by HSV-2 (HSV-1 is taking over).

Signs: Flu-like prodrome, then grouped vesicles/papules develop around genitals. These burst, and form shallow ulcers.

Management:

Oral aciclovir. Some patients with frequent exacerbations may benefit from longer term acyclovir

SAMPLE



SAMPLE



Nephrology



1.	<p>A 34 year old woman with diabetes mellitus is undergoing a contrast radiography. What is the SINGLE most appropriate measure that should be taken to prevent renal damage with contrast dye?</p> <p>A. Reduce contrast dye B. Plenty of fluids C. NSAIDS D. ACE inhibitors E. IV dextrose</p> <p>Contrast induced nephropathy</p> <p>Prevention Dehydration can increase your risk of contrast induced nephropathy. Thus, drink fluids to prevent dehydration. IV normal saline can help prevent dehydration as well. The evidence supporting their use is strong. In practice, 0.9% NaCl 1mL/kg/h for 12h pre- and 12h post-procedure is given to patients.</p> <p>There are some studies that show that N-acetylcysteine (NAC) may be of some use to prevent contrast induced nephropathy but it is unlikely to be asked in a basic exam like PLAB part 1.</p>
2.	<p>A 32 year old woman of 38 weeks gestation complains of feeling unwell with fever, rigors and abdominal pains. The pain was initially located in the abdomen and was associated with urinary frequency and dysuria. The pain has now become more generalized specifically radiating to the right loin. She says that she has felt occasional uterine tightening. CTG is reassuring. What is the SINGLE most likely diagnosis?</p> <p>A. Acute fatty liver of pregnancy B. Acute pyelonephritis C. Round ligament stretching D. Cholecystitis E. Cystitis</p> <p>Fever, rigor, abdominal pain associated with frequency and dysuria and radiation to the right loin suggests right sided pyelonephritis.</p> <p>Acute pyelonephritis Pyelonephritis is an inflammation of the kidney and renal pelvis.</p> <p>Risk factors</p> <ul style="list-style-type: none">- Structural renal abnormalities, including vesicoureteric reflux (VUR)- Calculi and urinary tract catheterisation- Stents or drainage procedures- Pregnancy- Diabetes- Primary biliary cirrhosis- Neuropathic bladder



	<ul style="list-style-type: none">- Prostate enlargement <p>Presentation</p> <ul style="list-style-type: none">- Onset is rapid with symptoms appearing over a day or two- Unilateral or bilateral loin pain, suprapubic pain or back pain- Fever is variable but can be high enough to produce rigors- Nausea, vomiting- There are usually accompanying symptoms suggestive of a lower UTI (frequency, urgency, suprapubic pain, urethral burning or pain on voiding) <p>Investigations</p> <ul style="list-style-type: none">- Urinalysis: urine may be cloudy with an offensive smell. Positive on dipstick urinalysis for blood, protein, leukocyte esterase and nitrite- A midstream specimen of urine (MSU) should always be sent off for microscopy and culture. A catheter specimen will be acceptable if a catheter is in situ.- Special arrangements may be needed for collecting a sample from a child. (Clean catch, catheter or suprapubic aspiration are methods used which reduce the risk of contamination- Microscopy of urine shows pyuria <p>Management</p> <ul style="list-style-type: none">- Support: rest, adequate fluid intake and analgesia- Antibiotics: start empirical antibiotic treatment whilst awaiting culture and sensitivity. Antibiotics are usually given according to your local antibiotic policy. In general, for adults, current UK protocols recommend that the first-line antibiotic should be either ciprofloxacin or co-amoxiclav. Trimethoprim may be used if culture confirms sensitivity- For children co-amoxiclav is recommended as first-line treatment, with cefixime second-line <p>Note:</p> <ul style="list-style-type: none">- Eighty percent of infections are secondary to E. coli
3.	<p>A 26 year old mountain biker was rescued after being trapped under heavy rocks for almost 12 hours. His urine is dark and urine is positive for blood on dipstick. His heart rate is 120 bpm and systolic blood pressure is 100 mmHg. Lab results show a creatinine of 350 $\mu\text{mol/L}$ and urea of 15 mmol/L. What is the SINGLE most appropriate management?</p> <p>Normal Lab values: Creatinine 70–150$\mu\text{mol/L}$ Urea 2.5–6.7mmol/L</p> <p>A. Dialysis B. IV Normal saline C. IV dextrose D. IV KCl E. Pain relief</p>



This patient here has attained severe crush injuries which has lead to rhabdomyolysis Rhabdomyolysis results from skeletal muscle breakdown, with release of its contents into the circulation, including myoglobin, K⁺, phosphate, urate and creatine kinase

(CK). Rhabdomyolysis is caused by sudden, severe crush injury, seizures, and severe exertion. This disorders result in enough pigment release in the bloodstream to cause nephrotoxicity. The toxicity is because the pigment is directly toxic to the tubular cells as well as from precipitation of the pigment in the tubules. The degree of toxicity is related to the duration of contact of the tubular cells with myoglobin.

This toxicity is compounded by dehydration. Hence, a person who has run a marathon has both myoglobin release as well as poor kidney perfusion. This is cumulative in the risk of renal failure.

Laboratory testing.

The most important test when there has been a severe crush injury and the rhabdomyolysis is potentially life threatening is an ECG or potassium level.

This implies that you know how a patient with rhabdomyolysis will die. Acidosis and hyperkalemia can lead to an arrhythmia. If there are peaked T-waves on the ECG, you will give calcium chloride or calcium gluconate.

The best initial test that is specific for rhabdomyolysis is a urinalysis in which you find a dipstick that is positive for blood but in which no red cells are seen. This is a False +ve dipstick haematuria. This is because myoglobin can react with the reagent on the dipstick and come out as if there were red cells present. Hemoglobin will do the same thing. The dipstick of the urinalysis cannot distinguish among hemoglobin, myoglobin, and red blood cells. This is because myoglobin has heme in it.

Rhabdomyolysis is confirmed with a markedly elevated serum CPK level. Elevated serum

CPK is a biochemical marker of skeletal muscle neurosis.

Rhabdomyolysis is associated with a very rapidly rising creatinine level. This is because of both renal failure as well as the massive release of muscle products.

Treatment

If there are ECG abnormalities from the hyperkalemia the best initial therapy is calcium chloride or gluconate.

IV fluid rehydration is a priority to prevent AKI. This decreases the duration of contact between the nephrotoxic myoglobin and the kidney tubule.

IV sodium bicarbonate is used to alkalinize urine to pH >6.5, to stabilize a less toxic form of myoglobin. Alkalinizing the urine with bicarbonate may help prevent the precipitation of the pigment in the tubule



	<p>Dialysis may be needed. Ideally manage patient in HDU/ICU setting to allow early detection of deterioration and regular bloods and monitoring. Prognosis is good if treated early.</p>
4.	<p>A 45 year old known hypertensive man presents with tiredness, lethargy, fluid retention and proteinuria. His albumin levels are low. What is the SINGLE most definitive diagnostic test?</p> <p>A. Mid stream urine for culture B. Renal biopsy C. Renal function test D. Urine microscopy E. Serum protein</p> <p>This patient is presenting with nephrotic syndrome. The definitive test to do is a renal biopsy as this would provide us with the aetiology.</p> <p>Nephrotic syndrome</p> <p>Triad of:</p> <ol style="list-style-type: none">1. Proteinuria (> 3g/24hr) causing2. Hypoalbuminaemia (< 30g/L) and3. Oedema <p>Causes</p> <p><u>Primary glomerulonephritis accounts for around 80% of cases</u></p> <ul style="list-style-type: none">- minimal change glomerulonephritis (causes 80% in children, 30% in adults)- membranous glomerulonephritis- focal segmental glomerulosclerosis- membranoproliferative glomerulonephritis <p><u>Systemic disease</u></p> <ul style="list-style-type: none">- diabetes mellitus- systemic lupus erythematosus- amyloidosis
5.	<p>A 31 year old lady has urinary frequency, pain on voiding and back pain. The urine is cloudy with an offensive smell. She has a temperature of 38.6°C. What is the SINGLE most likely causative organism?</p> <p>A. Klebsiella B. Escherichia coli C. Proteus D. Staphylococci E. Pseudomonas</p> <p>Acute pyelonephritis</p> <p>Pyelonephritis is an inflammation of the kidney and renal pelvis.</p>

**Risk factors**

- Structural renal abnormalities, including vesicoureteric reflux (VUR)
- Calculi and urinary tract catheterisation
- Stents or drainage procedures
- Pregnancy
- Diabetes
- Primary biliary cirrhosis
- Neuropathic bladder
- Prostate enlargement

Presentation

- Onset is rapid with symptoms appearing over a day or two
- Unilateral or bilateral loin pain, suprapubic pain or back pain
- Fever is variable but can be high enough to produce rigors
- Nausea, vomiting
- There are usually accompanying symptoms suggestive of a lower UTI (frequency, urgency, suprapubic pain, urethral burning or pain on voiding)

Investigations

- Urinalysis: urine may be cloudy with an offensive smell. Positive on dipstick urinalysis for blood, protein, leukocyte esterase and nitrite
- A midstream specimen of urine (MSU) should always be sent off for microscopy and culture. A catheter specimen will be acceptable if a catheter is in situ.
- Special arrangements may be needed for collecting a sample from a child. (Clean catch, catheter or suprapubic aspiration are methods used which reduce the risk of contamination)
- Microscopy of urine shows pyuria

Management

- Support: rest, adequate fluid intake and analgesia
- Antibiotics: start empirical antibiotic treatment whilst awaiting culture and sensitivity. Antibiotics are usually given according to your local antibiotic policy. In general, for adults, current UK protocols recommend that the first-line antibiotic should be either ciprofloxacin or co-amoxiclav. Trimethoprim may be used if culture confirms sensitivity
- For children co-amoxiclav is recommended as first-line treatment, with cefixime second-line

Note:

- Eighty percent of infections are secondary to E. coli



6. A 27 year old lady was admitted with fever, rigors, and loin pain. A dipstick urinalysis was positive for blood, leukocyte esterase and nitrites. A midstream specimen of urine (MSU) was sent for culture. What is the SINGLE appropriate action?

A. Start antibiotics immediately

B. Wait for culture results to start antibiotics

C. Spiral CT

D. Intravenous pyelogram (IVP)

E. Ultrasound and KUB X-ray

Acute pyelonephritis

Pyelonephritis is an inflammation of the kidney and renal pelvis.

Risk factors

- Structural renal abnormalities, including vesicoureteric reflux (VUR)
- Calculi and urinary tract catheterisation
- Stents or drainage procedures
- Pregnancy
- Diabetes
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- Neuropathic bladder
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	<ul style="list-style-type: none">- For children co-amoxiclav is recommended as first-line treatment, with cefixime second-line <p>Note:</p> <ul style="list-style-type: none">- Eighty percent of infections are secondary to E. coli
7.	<p>In chronic renal failure, what is the main cause of vitamin D deficiency?</p> <p>A. Decreased vitamin D absorption in intestines B. Deficiency of 25 alpha-hydroxyvitamin D C. Excess Vitamin D loss in urine D. Reduced activity of 1-alpha hydroxylation E. Unavailability of Vit D precursors</p> <p>Patients with kidney disease have reduced activity of the enzyme 1-α hydroxylase in the kidneys, which converts 25-hydroxyvitamin D to its more active form, 1,25-dihydroxyvitamin D, and thus patients with kidney disease have traditionally been given vitamin D replacement with active, 1,25-dihydroxyvitamin D or a related analog.</p>
8.	<p>A 24 year old male was trying to move his wardrobe when it fell on his thigh. His two legs were trapped underneath it for several hours before someone was able to help him get out. When he was seen in the ED his urine was dark and dipstick was positive for blood. His heart rate is 115 bpm and systolic blood pressure is 100 mmHg. Lab results show a creatinine of 320 μmol/L and urea of 13 mmol/L. What is the SINGLE most likely cause of his renal failure?</p> <p>Creatinine 70–150μmol/L</p> <p>Urea 2.5–6.7mmol/L</p> <p>Plab Lab Values</p> <p>A. Acetylcholine B. Drug toxicity C. Troponin D. Acetoacetate E. Myoglobin</p> <p>Rhabdomyolysis results from skeletal muscle breakdown, with release of its contents into the circulation, including myoglobin, K⁺, phosphate, urate and creatine kinase (CK). Rhabdomyolysis is caused by sudden, severe crush injury, seizures, and severe exertion. This disorders result in enough pigment release in the bloodstream to cause nephrotoxicity. The toxicity is because the pigment is directly toxic to the tubular cells as well as from precipitation of the pigment in the tubules. The degree of toxicity is related to the duration of contact of the tubular cells with myoglobin.</p>



This toxicity is compounded by dehydration. Hence, a person who has run a marathon has both myoglobin release as well as poor kidney perfusion. This is cumulative in the risk of renal failure.

Laboratory testing.

The most important test when there has been a severe crush injury and the rhabdomyolysis is potentially life threatening is an ECG or potassium level.

This implies that you know how a patient with rhabdomyolysis will die. Acidosis and hyperkalemia can lead to an arrhythmia. If there are peaked T-waves on the ECG, you will give calcium chloride or calcium gluconate.

The best initial test that is specific for rhabdomyolysis is a urinalysis in which you find a dipstick that is positive for blood but in which no red cells are seen. This is a False +ve dipstick haematuria. This is because myoglobin can react with the reagent on the dipstick and come out as if there were red cells present. Hemoglobin will do the same thing. The dipstick of the urinalysis cannot distinguish among hemoglobin, myoglobin, and red blood cells. This is because myoglobin has heme in it.

Rhabdomyolysis is confirmed with a markedly elevated serum CPK level. Elevated serum

CPK is a biochemical marker of skeletal muscle neurosis.

Rhabdomyolysis is associated with a very rapidly rising creatinine level. This is because of both renal failure as well as the massive release of muscle products.

Treatment

If there are ECG abnormalities from the hyperkalemia the best initial therapy is calcium chloride or gluconate.

IV fluid rehydration is a priority to prevent AKI. This decreases the duration of contact between the nephrotoxic myoglobin and the kidney tubule.

IV sodium bicarbonate is used to alkalinize urine to pH >6.5, to stabilize a less toxic form of myoglobin. Alkalinizing the urine with bicarbonate may help prevent the precipitation of the pigment in the tubule

Dialysis may be needed. Ideally manage patient in HDU/ICU setting to allow early detection of deterioration and regular bloods and monitoring. Prognosis is good if treated early.



9. An 18 year old man reports having several episodes of visible haematuria over the last 24 hours. There is no history of abdominal or loin pain. These typically seem to occur within a day or two of developing an upper respiratory tract infection. Urine testing by dipstick shows albumin and blood. What is the SINGLE most likely diagnosis?

- A. IgA nephropathy**
B. Henoch-Schönlein purpura
C. Minimal change nephropathy
D. Wilson's disease
E. Post-streptococcal glomerulonephritis

IgA nephropathy (Berger's disease)

Features

- Young male, recurrent episodes of macroscopic haematuria
- Typically usually with an upper respiratory tract infection or, less often, gastroenteritis. Most patients have a history of an upper respiratory tract infection and, either at the onset or within the first 24-48 hours, there is gross haematuria that lasts for less than three days. The urine is red or brown and there may also be loin pain.
- Alternatively, there may be no symptoms but urine shows erythrocytes, casts and proteinuria.
- It is associated with a number of other diseases, including Henoch-Schönlein purpura.
- Of those that do not remit, there is a slow progression to ESKD.

Differentiating between IgA nephropathy and post-streptococcal glomerulonephritis

IgA nephropathy	Post-streptococcal glomerulonephritis
<ul style="list-style-type: none">- Develops 1-2 days after URTI- Main symptom → Haematuria- Young males	<ul style="list-style-type: none">- Develops 1-2 weeks after URTI- Main symptom → Proteinuria- Associated with low complement levels

10. A 50 year old women newly diagnosed with hypertension complains of urinary frequency and dysuria for the past 2 weeks. Urinalysis reveals presence of white cells and protein. What is the SINGLE most appropriate management?

- A. Imipramine
B. Furosemide
C. Vaginal oestrogen cream
D. Trimethoprim
E. Clotrimazole



	<p>This lady has a urinary tract infection. The hypertension given in this stem has no relationship to the management and it is given to throw you off. Trimethoprim would be the most appropriate choice given that it is an antibiotic used to treat UTI.</p>
11.	<p>A 44 year old man presents with periorbital and pedal edema. 24h urine shows 8 g of protein and his serum cholesterol is 7 mmol/L. Renal biopsy results have not come back yet. What would be the SINGLE most likely diagnosis?</p> <p>A. Minimal change disease B. Membranous glomerulonephropathy C. Focal segmental glomerulosclerosis (FSGS) D. IgA nephropathy E. Mesangiocapillary</p> <p>Membranous nephropathy</p> <ul style="list-style-type: none">- This is the most common form of idiopathic nephrotic syndrome in adults. It is also associated with cancer such as lymphoma or breast cancer, and infections such as endocarditis or chronic hepatitis B or C. Other etiologies are lupus, penicillamine, gold salts, and NSAIDs.- Accounts for 20–30% of nephrotic syndrome in adults; 2–5% in children.- Mostly idiopathic <p>Treatment: Secondary involves treating the underlying cause</p> <p>In idiopathic membranous, treatment involves general measures such as ACE/ARB and diuretics. Spontaneous complete remission occurs in up to 30% and partial remission in 24–40% by 5 years.</p>
12.	<p>A 26 year old man presents to hospital complaining that his urine has been very dark recently resembling tea. He had recently been under “the weather” 2 weeks back and had taken a few days off work with a sore throat and coryzal symptoms. A urine dipstick returns highly positive for blood and protein. He is admitted for supportive management. What is the SINGLE most likely diagnosis?</p> <p>A. Membranous glomerulonephropathy B. Systemic Lupus Erythematosus C. Wegener’s granulomatosis D. Post-streptococcal glomerulonephritis E. IgA nephropathy</p> <p>Post-streptococcal glomerulonephritis Post-streptococcal glomerulonephritis typically occurs 7-14 days following a group A beta-haemolytic Streptococcus infection (usually Streptococcus pyogenes). It classically follows a streptococcal sore throat but often occurs after infection elsewhere, e.g. tonsillitis, pharyngitis (commonly), impetigo, otitis media, and cellulitis.</p>



It is caused by immune complex (IgG, IgM and C3) deposition in the glomeruli. Young children most commonly affected usually below age 7.

Clinical presentation

Varies from asymptomatic microscopic haematuria through to an acute nephritic syndrome, with frank haematuria, oliguria, proteinuria, oedema, increased blood pressure and AKI.

Very commonly patients would describe their urine as smoky, cola, or tea-colored urine. This abnormal urine color is from hematuria, red cell casts, and proteinuria.

Investigations

- Low C3
- Raised anti-streptolysin O titre
- The most accurate test is the renal biopsy showing "humps" on electron microscopy. IgG and C3 will be deposited in the mesangium as subepithelial humps. However, biopsy is rarely needed as treatment is largely supportive with the vast majority resolving spontaneously.

Differentiating between IgA nephropathy and post-streptococcal glomerulonephritis

IgA nephropathy	Post-streptococcal glomerulonephritis
<ul style="list-style-type: none">- Develops 1-2 days after URTI- Main symptom → Haematuria- Young males	<ul style="list-style-type: none">- Develops 1-2 weeks after URTI- Main symptom → Proteinuria- Associated with low complement levels

- 13.** A 29 year old lady was admitted with fever, rigors, loin pain and vomiting. A dipstick urinalysis was positive for blood, leukocyte esterase and nitrites. She has a history of repeated urinary tract infections but this time she has blood in her urine. What is the SINGLE most likely diagnosis?

- A. Acute pyelonephritis**
B. Chronic pyelonephritis
C. Urinary tract infection
D. Bladder stone
E. Urethritis

The loin pain is suggestive of acute pyelonephritis. Urinary tract infection is not wrong as acute pyelonephritis is under the category of a urinary tract infection but the more specific answer would be acute pyelonephritis.

Many doctors would have answered chronic pyelonephritis because of the history of repeated urinary tract infections. However, chronic pyelonephritis usually has no active infection. They may present with symptoms secondary to renal failure. Diagnosis is often from incidental findings during general investigation.

**Acute pyelonephritis**

Pyelonephritis is an inflammation of the kidney and renal pelvis.

Risk factors

- Structural renal abnormalities, including vesicoureteric reflux (VUR)
- Calculi and urinary tract catheterisation
- Stents or drainage procedures
- Pregnancy
- Diabetes
- Primary biliary cirrhosis
- Neuropathic bladder
- Prostate enlargement

Presentation

- Onset is rapid with symptoms appearing over a day or two
- Unilateral or bilateral loin pain, suprapubic pain or back pain
- Fever is variable but can be high enough to produce rigors
- Nausea, vomiting
- There are usually accompanying symptoms suggestive of a lower UTI (frequency, urgency, suprapubic pain, urethral burning or pain on voiding)

Investigations

- Urinalysis: urine may be cloudy with an offensive smell. Positive on dipstick urinalysis for blood, protein, leukocyte esterase and nitrite
- A midstream specimen of urine (MSU) should always be sent off for microscopy and culture. A catheter specimen will be acceptable if a catheter is in situ.
- Special arrangements may be needed for collecting a sample from a child. (Clean catch, catheter or suprapubic aspiration are methods used which reduce the risk of contamination)
- Microscopy of urine shows pyuria

Management

- Support: rest, adequate fluid intake and analgesia
- Antibiotics: start empirical antibiotic treatment whilst awaiting culture and sensitivity. Antibiotics are usually given according to your local antibiotic policy. In general, for adults, current UK protocols recommend that the first-line antibiotic should be either ciprofloxacin or co-amoxiclav. Trimethoprim may be used if culture confirms sensitivity
- For children co-amoxiclav is recommended as first-line treatment, with cefixime second-line

Note:

- Eighty percent of infections are secondary to E. coli



14. A 32 year old miner was rescued after being trapped under a fallen rock for 4 hours. After applying a bladder catheter, 15-20 ml of reddish brown urine was obtained. He has a systolic blood pressure of 100 mmHg and a pulse rate of 130 beats/minute. What is the SINGLE most appropriate next management?

- A. Dopamine intravenously
- B. Intravenous fluids**
- C. Furosemide intravenously
- D. 20% Mannitol intravenously
- E. Intravenous antibiotics

The patient has developed rhabdomyolysis as he was trapped under a fallen rock for several hours. The reddish brown sometimes referred to as 'tea-coloured' urine is due to myoglobin in the urine. Due to the danger of acute renal failure, intravenous fluids would be an appropriate option to avoid further renal compromise.

Rhabdomyolysis results from skeletal muscle breakdown, with release of its contents into the circulation, including myoglobin, K⁺, phosphate, urate and creatine kinase

(CK). Rhabdomyolysis is caused by sudden, severe crush injury, seizures, and severe exertion. This disorders result in enough pigment release in the bloodstream to cause nephrotoxicity. The toxicity is because the pigment is directly toxic to the tubular cells as well as from precipitation of the pigment in the tubules. The degree of toxicity is related to the duration of contact of the tubular cells with myoglobin.

This toxicity is compounded by dehydration. Hence, a person who has run a marathon has both myoglobin release as well as poor kidney perfusion. This is cumulative in the risk of renal failure.

Laboratory testing.

The most important test when there has been a severe crush injury and the rhabdomyolysis is potentially life threatening is an ECG or potassium level.

This implies that you know how a patient with rhabdomyolysis will die. Acidosis and hyperkalemia can lead to an arrhythmia. If there are peaked T-waves on the ECG, you will give calcium chloride or calcium gluconate.

The best initial test that is specific for rhabdomyolysis is a urinalysis in which you find a dipstick that is positive for blood but in which no red cells are seen. This is a False +ve dipstick haematuria. This is because myoglobin can react with the reagent on the dipstick and come out as if there were red cells present. Hemoglobin will do the same thing. The dipstick of the urinalysis cannot distinguish among hemoglobin, myoglobin, and red blood cells. This is because myoglobin has heme in it.

Rhabdomyolysis is confirmed with a markedly elevated serum CPK level. Elevated serum



	<p>CPK is a biochemical marker of skeletal muscle neurosis.</p> <p>Rhabdomyolysis is associated with a very rapidly rising creatinine level. This is because of both renal failure as well as the massive release of muscle products.</p> <p>Treatment</p> <p>If there are ECG abnormalities from the hyperkalemia the best initial therapy is calcium chloride or gluconate.</p> <p>IV fluid rehydration is a priority to prevent AKI. This decreases the duration of contact between the nephrotoxic myoglobin and the kidney tubule.</p> <p>IV sodium bicarbonate is used to alkalinize urine to pH >6.5, to stabilize a less toxic form of myoglobin. Alkalinizing the urine with bicarbonate may help prevent the precipitation of the pigment in the tubule</p> <p>Dialysis may be needed. Ideally manage patient in HDU/ICU setting to allow early detection of deterioration and regular bloods and monitoring. Prognosis is good if treated early.</p>
15.	<p>A 3 year old child presents to A&E with history of bloody diarrhea and decreased urination. The mother states that the child's developed fever, vomiting, abdominal pain, and diarrhea that started 5 days ago. On physical examination, the patient appears ill. He is pale and lethargic. Laboratory results show platelets $80 \times 10^9/L$, haemoglobin 9 mg/dL,. There was fragmented red cells on blood film. What is the SINGLE most likely diagnosis?</p> <p>A. Ulcerative colitis</p> <p>B. Hemolytic uremic syndrome</p> <p>C. Thrombotic thrombocytopenic purpura (TTP)</p> <p>D. Hepatorenal syndrome</p> <p>E. Sepsis</p> <p>Haemolytic uraemic syndrome (HUS)</p> <p>HUS consists of a triad of haemolytic anaemia, uraemia, and thrombocytopenia.</p> <p>The anaemia will be intravascular in nature and will have an abnormal blood smear showing schistocytes, helmet cells, and fragmented red cells.</p> <p>LDH and reticulocyte count will be elevated and the haptoglobin decreased.</p> <p>90% are caused by E. coli strain O157. This produces a verotoxin that attacks endothelial cells. Occurs after eating undercooked contaminated meat.</p> <p>Signs: Abdominal pain, bloody diarrhoea, and AKI.</p> <p>Management</p> <p>- Treatment is supportive e.g. Fluids, blood transfusion and dialysis if required</p>



	<ul style="list-style-type: none">- Do not give antibiotics to those with possible HUS. The organism may release more toxins as it dies if antibiotics are given and may worsen the disease.- The indications for plasma exchange in HUS are complicated. As a general rule plasma exchange is reserved for severe cases of HUS not associated with diarrhoea
16.	<p>A 65 year old diabetic woman is undergoing a coronary angiography. What is the SINGLE most appropriate measure to prevent contrast induced nephropathy?</p> <p>A. Administer furosemide B. Administer dextrose C. Administer 0.45% saline D. Administer 0.9% saline E. Administer corticosteroids</p> <p>Contrast induced nephropathy</p> <p>Prevention Dehydration can increase your risk of contrast induced nephropathy. Thus, drink fluids to prevent dehydration. IV normal saline can help prevent dehydration as well. The evidence supporting their use is strong. In practice, 0.9% NaCl 1mL/kg/h for 12h pre- and 12h post-procedure is given to patients.</p> <p>There are some studies that show that N-acetylcysteine (NAC) may be of some use to prevent contrast induced nephropathy but it is unlikely to be asked in a basic exam like PLAB part 1.</p>
17.	<p>A 6 year old boy is brought to the emergency department by his mother because of swelling on his legs the has been worsening in the last two days. The swelling is also present in the scrotum and around his eyes. He is generally tired and his urine is noted to be frothy. Renal biopsy report states no abnormalities can be seen on light microscopy, however, electron microscopy reveals abnormal podocytes (fused). What is the SINGLE most likely diagnosis?</p> <p>A. Thrombotic thrombocytopenic purpura (TTP) B. Myelodysplastic disease C. Henoch–Schönlein purpura (HSP) D. Membranous glomerulonephritis E. Minimal change disease</p> <p>The phrase “electron microscopy shows fusion of podocytes” is key. This tells you that it can be nothing else but minimal change disease. PLAB questions would likely give a scenario similar to this where a child is having symptoms of swelling or proteinuria and a renal biopsy shows fusion of podocytes on electron microscopy.</p> <p>Minimal change disease</p> <p>Minimal change disease nearly always presents as nephrotic syndrome, accounting for 75% of cases in children and 25% in adults.</p>



	<p>The majority of cases are idiopathic</p> <p>Features</p> <ul style="list-style-type: none">- Nephrotic syndrome- Normotension - hypertension is rare- Renal biopsy: electron microscopy shows fusion of podocytes <p>Management</p> <ul style="list-style-type: none">- Majority of cases (80%) are steroid responsive- Cyclophosphamide is the next step for steroid resistant cases
18.	<p>A 24 year old man has just completed a long-distance running event. He becomes very weak afterward and is brought to the emergency department with painful muscles and red-brown urine. Urine is positive for blood on dipstick but without RBC on microscopy. ECG shows a tall T waves, small P waves, and a widened QRS complex. What is the SINGLE most appropriate initial management?</p> <p>A. Intravenous calcium gluconate B. IV normal saline C. IV Magnesium sulphate D. Pain relief E. Oral rehydration</p> <p>SAMPLE</p> <p>This man has just finished a long-distance run of which he was severely exerted. The skeletal muscle breakdown has resulted in Rhabdomyolysis and thus hyperkalaemia. IV calcium gluconate needs to be administered first for cardio protection.</p> <p>Rhabdomyolysis results from skeletal muscle breakdown, with release of its contents into the circulation, including myoglobin, K⁺, phosphate, urate and creatine kinase</p> <p>(CK). Rhabdomyolysis is caused by sudden, severe crush injury, seizures, and severe exertion. This disorders result in enough pigment release in the bloodstream to cause nephrotoxicity. The toxicity is because the pigment is directly toxic to the tubular cells as well as from precipitation of the pigment in the tubules. The degree of toxicity is related to the duration of contact of the tubular cells with myoglobin.</p> <p>This toxicity is compounded by dehydration. Hence, a person who has run a marathon has both myoglobin release as well as poor kidney perfusion. This is cumulative in the risk of renal failure.</p> <p>Laboratory testing.</p> <p>The most important test when there has been a severe crush injury and the rhabdomyolysis is potentially life threatening is an ECG or potassium level.</p>



	<p>This implies that you know how a patient with rhabdomyolysis will die. Acidosis and hyperkalemia can lead to an arrhythmia. If there are peaked T-waves on the ECG, you will give calcium chloride or calcium gluconate.</p> <p>The best initial test that is specific for rhabdomyolysis is a urinalysis in which you find a dipstick that is positive for blood but in which no red cells are seen. This is a False +ve dipstick haematuria. This is because myoglobin can react with the reagent on the dipstick and come out as if there were red cells present. Hemoglobin will do the same thing. The dipstick of the urinalysis cannot distinguish among hemoglobin, myoglobin, and red blood cells. This is because myoglobin has heme in it.</p> <p>Rhabdomyolysis is confirmed with a markedly elevated serum CPK level. Elevated serum CPK is a biochemical marker of skeletal muscle neurosis.</p> <p>Rhabdomyolysis is associated with a very rapidly rising creatinine level. This is because of both renal failure as well as the massive release of muscle products.</p> <p>Treatment</p> <p>If there are ECG abnormalities from the hyperkalemia the best initial therapy is calcium chloride or gluconate.</p> <p>IV fluid rehydration is a priority to prevent AKI. This decreases the duration of contact between the nephrotoxic myoglobin and the kidney tubule.</p> <p>IV sodium bicarbonate is used to alkalinize urine to pH >6.5, to stabilize a less toxic form of myoglobin. Alkalinizing the urine with bicarbonate may help prevent the precipitation of the pigment in the tubule</p> <p>Dialysis may be needed. Ideally manage patient in HDU/ICU setting to allow early detection of deterioration and regular bloods and monitoring. Prognosis is good if treated early.</p>
19.	<p>A 34 year old primigravida who is now 16 week gestation attends the antenatal clinic for a routine check up. She has a blood pressure of 160/100 mmHg. She has a history of repeated childhood urinary tract infections. What is the SINGLE most likely cause of her high blood pressure?</p> <p>A. Essential hypertension B. Chronic pyelonephritis C. Acute pyelonephritis D. Pre-eclampsia E. Perinephric abscess</p> <p>Repeated urinary tract infection in childhood can lead to renal scarring and chronic pyelonephritis which results in hypertension.</p>

**Chronic pyelonephritis**

This describes renal scarring which may or may not be related to previous UTI. It is a radiological, functional, or pathological diagnosis or description.

Causes

- Renal scarring due to previous infection
- Long-term effects of VUR, with or without superimposed infection
- A child with VUR, particularly where there is reflux of infected urine, will develop reflux nephropathy (which, if bilateral, may cause renal impairment or renal failure). If the child's kidneys are examined radiologically, the radiologist will describe the appearances as those of 'chronic pyelonephritis'.
- An adult may also develop radiological features of chronic pyelonephritis due to the presence of reflux combined with high bladder pressures, again particularly where the urine is infected.

Presentation

- Patients may be asymptomatic or present with symptoms secondary to renal failure.
- Diagnosis is often from incidental findings during general investigation.
- There is usually no active infection.

Appearances on imaging

- Renal ultrasound may show small kidneys with a thin cortex
- Intravenous pyelogram (IVP) may show small kidneys, ureteric and caliceal dilatation/blunting with cortical scarring
- Micturating cystourethrogram (MCUG) may help to identify reflux.
- Technetium-99m Tc-DMSA scan is the most sensitive for demonstration of renal scars.

Management

- Aim to investigate and treat any infection, prevent further UTI, and monitor and optimize renal function
- Blood pressure should be controlled to slow the progression of chronic kidney disease. Ideally using angiotensin-converting enzyme (ACE) inhibitors
- Severe underlying VUR diagnosed in children may require antibiotics prophylactically until puberty or until the reflux resolves



20.	<p>A 35 year old lady presents with a 12 day history of haemoptysis, and 24 hour history of haematuria. In last 24 hours she has become increasingly breathless and oliguric. A chest X-ray shows patchy interstitial infiltration predominantly affecting both lower zones. Her blood tests show:</p> <p>Haemoglobin 98 g/L Serum urea 9.5 mmol/L Serum creatinine 393 μmol/L Sodium 136 mmol/L Potassium 5.9 mmol/L</p> <p>What is the SINGLE most appropriate investigation?</p> <p>A. Anti-glomerular basement membrane antibodies B. Abdominal X-ray C. Urine protein electrophoresis D. Ultrasound abdomen E. Computed tomography abdomen and chest</p> <p>The likely diagnosis here is Goodpasture syndrome. The bloods reflect an acute kidney injury. The slightly lower haemoglobin levels can be explained by the persistent intrapulmonary bleeding.</p> <p>Anti-GBM antibodies are diagnostic:</p> <p>Goodpasture syndrome</p> <ul style="list-style-type: none">- Goodpasture's syndrome is the coexistence of acute glomerulonephritis and pulmonary alveolar haemorrhage <p>Presentation</p> <ul style="list-style-type: none">- Typically presents as acute kidney injury caused by a rapidly progressive glomerulonephritis, accompanied by pulmonary haemorrhage that may be life-threatening- Lung involvement is characterized by haemoptysis, cough, and shortness of breath <p>Anti-glomerular basement membrane antibodies are diagnostic</p> <p><i>Remember: The best initial test to confirm the diagnosis is anti-GBM antibodies. The SINGLE most accurate test is a lung or kidney biopsy</i></p> <p>Management</p> <p><i>Management for Goodpasture syndrome is highly unlikely to be asked given that Goodpasture's syndrome is an uncommon disease. But one should remember the principles of management:</i></p> <ul style="list-style-type: none">- Plasmapheresis (plasma exchange) to remove circulating antibodies- Treat with immunosuppressant medications to prevent further production of antibodies
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21.	<p>A 4 year old child presents with swelling. Periorbital oedema, lower limb oedema and oedema of the genitals were noted on examination. A urine dipstick shows proteinuria. He has a normal renal function, normal blood pressure, normal complement levels. What is the SINGLE most likely diagnosis?</p> <p>A. Post-streptococcal glomerulonephritis B. Membranous glomerulonephropathy C. Minimal change disease D. Rapidly progressive glomerulonephritis E. IgA nephropathy</p> <p>Minimal change disease</p> <p>Minimal change disease nearly always presents as nephrotic syndrome, accounting for 75% of cases in children and 25% in adults.</p> <p>The majority of cases are idiopathic</p> <p>Features</p> <ul style="list-style-type: none">- Nephrotic syndrome- Normotension - hypertension is rare- Renal biopsy: electron microscopy shows fusion of podocytes <p>Management</p> <ul style="list-style-type: none">- Majority of cases (80%) are steroid responsive- Cyclophosphamide is the next step for steroid resistant cases
22.	<p>A 32 year old man presents with painless haematuria and flank pain. His blood pressure is 155/98 mmHg. The rest of the physical examination was otherwise unremarkable. What is the SINGLE most likely diagnosis?</p> <p>A. Bladder cancer B. Adult polycystic kidney disease C. Thrombotic thrombocytopenic purpura (TTP) D. Prostate cancer E. Haemolytic uraemic syndrome (HUS)</p> <p>For the purpose of the examination, scenarios with haematuria + hypertension are almost always polycystic kidney disease (PKD).</p> <p>Questions often ask about screening test for PKD and give you an option between genetic testing for PKD1 or an ultrasound scan. The answer should always be an ultrasound scan. Genetic testing for PKD1 is difficult as the gene is large and there are hundreds of described mutations. USS screening offers good sensitivity and specificity.</p>



	<p>Autosomal dominant polycystic kidney disease</p> <p>Presentation</p> <ul style="list-style-type: none">- Flank pain- Haematuria (micro and gross)- Urinary tract infections (UTIs) and calculi- Hypertension- Bilateral kidney enlargement - abdominal examination may reveal enlarged and palpable kidneys <p>Other points:</p> <ul style="list-style-type: none">- Gross haematuria following trauma is a classic presenting feature of ADPKD- Sometimes present with kidney failure (usually in the fourth to sixth decade of life)- May also present as asymptomatic on screening of family members- Intracranial aneurysm is an important extrarenal manifestation (<i>an important point that is commonly asked</i>) <p><i>Note: The other extra-renal manifestation are less commonly asked</i></p> <p>Diagnosis: Ultrasound</p> <p>Treatment Nonspecific; management of hypertension</p>
23.	<p>A 42 year old woman with a past medical history of severe headache treated in the emergency department presents with signs and symptoms of renal failure. She has been seen by her GP for hypertension and loin pain with outpatient investigation pending. What SINGLE investigations is most likely to lead to a diagnosis?</p> <p>Plab Lab Values</p> <p>A. Ultrasound of the kidneys, ureters & bladder B. Computed tomography brain scan C. Intravenous urogram D. Renal artery doppler E. Renal biopsy</p> <p>The initial symptoms of headache and hypertension in this scenario would make you consider a renal artery stenosis. However, in addition to the loin pain and features of renal failure, the diagnosis of autosomal dominant polycystic kidney disease is more likely. This is best diagnosed using ultrasound of the kidneys, ureters & bladder.</p> <p>Questions often ask about screening test for PKD and give you an option between genetic testing for PKD1 or an ultrasound scan. The answer should always be an ultrasound scan. Genetic testing for PKD1 is difficult as the gene is large and there are hundreds of described mutations. USS screening offers good sensitivity and specificity.</p>



	<p>Autosomal dominant polycystic kidney disease</p> <p>Presentation</p> <ul style="list-style-type: none">- Flank pain- Haematuria (micro and gross)- Urinary tract infections (UTIs) and calculi- Hypertension- Bilateral kidney enlargement - abdominal examination may reveal enlarged and palpable kidneys <p>Other points:</p> <ul style="list-style-type: none">- Gross haematuria following trauma is a classic presenting feature of ADPKD- Sometimes present with kidney failure (usually in the fourth to sixth decade of life)- May also present as asymptomatic on screening of family members- Intracranial aneurysm is an important extrarenal manifestation (<i>an important point that is commonly asked</i>) <p><i>Note: The other extra-renal manifestation are less commonly asked</i></p> <p>Diagnosis: Ultrasound</p> <p>Treatment Nonspecific; management of hypertension</p>
24.	<p>A 65 year old woman with diabetes, and hypertension underwent a total right hip replacement. She had massive haemorrhage during the operation and was given 8 units of packed red blood cells. The blood pressure dropped to 60/40 mmHg for about two hours before it was corrected with intravenous fluids and blood transfusions. Two days after the surgery, her blood results show:</p> <p>Serum creatinine level rose to 255 $\mu\text{mol/L}$ Potassium 5.1 mmol/L</p> <p>She had a normal kidney function prior to the surgery. What is the SINGLE most likely diagnosis?</p> <p>A. Diabetic nephropathy B. Malignant hypertension C. Rhabdomyolysis D. Interstitial nephritis E. Acute tubular necrosis</p> <p>Acute tubular necrosis (ATN) can occur after a prolonged ischaemic event which likely took place here as there was a massive haemorrhage and a hypotensive shock. This is supported by the increased creatinine.</p>



	<p>Acute tubular necrosis is the commonest renal cause of an acute kidney injury. Other stems may include a history of nephrotoxins such as aminoglycosides, radiological contrast, and myoglobinuria in rhabdomyolysis.</p>
25.	<p>A 58 year old man complains of tiredness, lethargy, nausea and severe itching which is worse after a hot bath and at night. His skin appears pale and dry with increased skin pigmentation and numerous scratch marks. Peripheral oedema is noted on examination. What is the SINGLE most likely diagnosis?</p> <p>Plab Lab Values</p> <p>A. Hyperthyroidism B. Polycythaemia vera C. Chronic renal failure D. Eczema E. Liver failure</p> <p>The signs and symptoms points towards chronic renal failure. Uraemic pruritus also known as chronic kidney disease associated pruritus refers to excessive urea in the blood and occurs when both kidneys fail to work sufficiently. It is a common feature of end stage renal disease and has been seen to affect one-third of patients on dialysis.</p>
26.	<p>A 35 year old man has recently been diagnosed as having asthma. He has attended clinic with complains of having deep and aching pains in his lower back especially at night. On examination, there are skin lesions present in the form of tender subcutaneous nodules on his legs. Investigations were performed and he was started on corticosteroids. What is the SINGLE most likely diagnosis?</p> <p>A. Ankylosing spondylitis B. Churg-strauss syndrome C. Cryptogenic fibrosing alveolitis D. Polyarteritis nodosa E. Tropical eosinophilia</p> <p>Churg-Strauss syndrome The cardinal manifestations of Churg-Strauss syndrome are asthma, eosinophilia, and lung involvement</p> <p>Presentation Depends on which systems are involved The most prominent symptoms and signs include:</p> <ul style="list-style-type: none">- Pulmonary: Asthma, haemoptysis- Upper respiratory tract: Nasal polyposis, allergic rhinitis- Cardiac: Heart failure, myocarditis and myocardial infarction- Skin: Purpura, skin nodules, urticaria- Renal: Glomerulonephritis, hypertension- Peripheral neuropathy: mononeuritis multiplex



	<p><i>The typical patient with Churg-Strauss is a middle aged individual with new-onset asthma. Other symptoms that may be included in the stem are mononeuropathy, transient pulmonary infiltrates seen on chest X-ray, nasal polyps, and allergic rhinitis.</i></p> <p>Diagnosis</p> <ul style="list-style-type: none">- Peripheral eosinophilia is the most common finding- p-ANCA may be positive- Biopsy involved tissue <p>Management</p> <ul style="list-style-type: none">- Corticosteroids
27.	<p>A 2 year old boy has gradual swelling of his face, feet and legs. He feeds poorly but is noted to have gained weight. There is a foamy appearance of the urine. He feels fatigue. What is the SINGLE most appropriate investigation?</p> <p>A. Ultrasound kidneys B. 24 hour urinary protein C. Serum calcium D. Urea and electrolytes E. Serum glucose</p> <p>This is a case of nephrotic syndrome which is likely caused by minimal change disease. Minimal change disease has a peak incidence at 2 to 3 years of age. Almost all cases are idiopathic but a small percentage of cases have identifiable causes like NSAIDs, toxins, and infections.</p> <p>Children with minimal change disease often gain weight, as they are excreting less water in the urine.</p> <p>Testing the renal function is important however in most cases it would be normal (hyponatremia is often observed due to water retention). A 24-hour urine measurement for protein and creatinine clearance is a better answer.</p> <p>Nephrotic syndrome</p> <p>Triad of:</p> <ol style="list-style-type: none">1. Proteinuria (> 3g/24hr) causing2. Hypoalbuminaemia (< 30g/L) and3. Oedema



28. A 52 year old man known diabetes mellitus presents to emergency department with sudden onset of pain in the left loin and haematuria. An ultrasound scan shows a 7mm stone in left lower ureter. Diclofenac was administered for the renal colic pain and nifedipine and prednisolone was prescribed as initial treatment as part of an expulsive therapy. He returns to the emergency department the following day with worsening pain, vomiting and a history of having passed two stones. A repeat ultrasound scan reveals hydronephrosis in the left ureter and the presence of stones. His renal function test indicate an acute kidney injury. What is the SINGLE most appropriate management?

- A. Repeat a similar regimen
- B. Administer an alpha blocker
- C. Extracorporeal shock wave lithotripsy
- D. Open surgery
- E. Percutaneous nephrostomy**

This acute kidney injury and hydronephrosis are indicative of an obstructive uropathy. Percutaneous nephrostomy would be the best intervention to temporary decompress the renal collecting system.

Percutaneous nephrostomy

This is used as a temporary relief of ureteric obstruction where ureteric stones fail to respond to analgesics and where renal function is impaired due to the stone. It is an intervention that decompresses the renal collecting system by placing a catheter, through the skin, into the kidney, under local anaesthetic. This catheter allows the urine to drain from the kidney into a collecting bag, outside the body. Another method that is often used to relieve ureteric obstruction is an insertion of a JJ stent.

The function of a percutaneous nephrostomy is to bypass the ureteric obstruction and therefore relieve the pain associated with the obstruction.

The percutaneous nephrostomy tube can restore efficient peristalsis to the ureteric wall and in some cases this allows the stone to pass down and out of the ureter with the nephrostomy in situ, however in many instances, it simply sits where it is and subsequent definitive management to remove the stone is still required.



29. A 2 year old boy is brought to the hospital by his mother with diarrhoea and vomiting. He was previously fit and well until a few days ago where he was treated with antibiotics by his general practitioner for an upper respiratory tract infection. He no longer has a cough but feels extremely unwell. His recent blood test show:

Na 124

Potassium 5.9

Urea 10.1

What is the SINGLE most likely diagnosis?

A. Renal failure

B. Adrenal insufficiency

C. Gastroenteritis

D. Pyloric stenosis

E. Hypopituitarism

This is a stem that is missing a number of vital information. However, with the bloods alone, one can say that this patient has a form of acute kidney injury. Whether the aetiology is due to sepsis or drugs (antibiotics), it remains unknown.

Acute kidney injury (AKI), formerly referred to as acute renal failure (ARF), is seen as an acute reduction in kidney function that results in a decline in glomerular filtration rate (GFR) leading to retention of urea and other nitrogenous waste products. The urea would be seen as high and high levels of urea in the blood can result in vomiting or diarrhea (or both). Hyperkalaemia is seen as the kidneys are not able to filter out potassium. Failure of kidneys to remove excess fluid results in hyponatraemia.

Clinical feature of acute kidney injury include fatigue, malaise, nausea, vomiting, chest pain, palpitations, shortness of breath, fluid overload, abdominal pain, oliguria.



SAMPLE



Neurology



1. A 72 year old woman is seen to collapse by her son. He calls the paramedics when she is unable to stand and seems weak down her right side. On arrival to the A&E her GCS is 13/15 with a right hemiparesis. She is increasingly agitated and within an hour her GCS is 8/15. Which is the SINGLE most appropriate next course of action?

A. Urgent anaesthetic review

- B. Start thrombolysis treatment
C. Give aspirin
D. Give lorazepam
E. Urgent CT head

Anaesthetic review would be the next most appropriate step of action. The history and examination are convincing for a stroke but the patient has rapidly dropped her consciousness levels, and before any investigations and treatment can happen this needs to be addressed. An anaesthetist would rather know at this stage rather than when a peri-arrest call is put out as her GCS reaches 4 or 5. The airway can be stabilized so that a CT scan can be performed safely.

The other options are less likely to be the appropriate next course of action.

Thrombolysis or aspirin → are the treatment options for ischaemic strokes but cannot be started until a CT scan excludes a haemorrhage.

Lorazepam → Agitation is common in intracranial events, especially haemorrhages, but should not be treated with sedation as this can mask real fluctuations in consciousness levels.

Urgent CT head → This will certainly be needed as the history and examination are convincing for a stroke. CT helps rule out primary haemorrhage. But only after the airway has been stabilized by the anaesthetist.

Stroke management

Summary of management of acute stroke:

- blood glucose, hydration, oxygen saturation and temperature should be maintained within normal limits
- aspirin 300mg orally or rectally should be given as soon as possible if a haemorrhagic stroke has been excluded
- Thrombolysis should only be given if it is administered within 4.5 hours of onset of stroke symptoms and haemorrhagic stroke has been excluded by imaging (Alteplase is currently recommended by NICE)

Post management stroke

- Aspirin 300 mg daily for 2 weeks is given immediately after an ischaemic stroke is confirmed by brain imaging.
- Clopidogrel 75 mg daily is then given long-term
- If clopidogrel is contraindicated or not tolerated, give a combination of modified-release dipyridamole and low dose aspirin.
- Ensure a statin has been offered.



2.	<p>A 50 year old man presents to the emergency department with right leg pain and back pain. There is greater pain when he is lying supine with his leg raised. What is the SINGLE most appropriate investigation?</p> <p>A. MRI B. CT spine C. Plain X-ray D. Dual energy X-ray absorptiometry E. Doppler ultrasound</p> <p>Lumbosacral disc herniation Presentation</p> <p>If there is nerve entrapment in the lumbosacral spine, this leads to symptoms of sciatica which include:</p> <ul style="list-style-type: none">• Unilateral leg pain which radiates below the knee to the foot/toes• The leg pain being more severe than the back pain• Numbness, paraesthesia, weakness and/or loss of tendon reflexes, which may be present and are found in the same distribution and only in one nerve root distribution• A positive straight leg raising test (there is greater leg pain and/or more nerve compression symptoms on raising the leg).• Pain which is usually relieved by lying down and exacerbated by long walks and prolonged sitting <p>Large herniations can compress the cauda equina, leading to symptoms/signs of saddle anaesthesia, urinary retention and incontinence</p> <p>Investigation</p> <p>No investigation may be needed if the symptoms settle within six weeks. MRI still remains the most sensitive in showing disc herniations. Plain X-rays may be useful, as they can show misalignments, instabilities and congenital anomalies well but the investigation of choice for a disc prolapse is an MRI.</p>
3.	<p>A 65 year old woman with difficulty in swallowing presents with an aspiration pneumonia. She has a bovine cough. Her tongue looks wasted and sits in the mouth with fasciculations. It is very difficult for her to articulate certain words. Sometimes as she swallows food, it comes back through her nose. What is the SINGLE most likely cause of her dysphagia?</p> <p>A. Bulbar palsy B. Oesophageal carcinoma C. Pharyngeal pouch D. Pseudobulbar palsy E. Systemic sclerosis</p> <p>Given her symptoms of dysphagia, tongue fasciculations, nasal regurgitations, and dysarthria, the likely diagnosis is bulbar palsy.</p>



	<p>The phrase "A bovine cough" is used to describe the non- explosive cough of someone unable to close their glottis. It is seen vagus nerve lesions, and may be associated with dysphonia.</p> <p>Bulbar Palsy</p> <p>Bulbar relates to the medulla. Bulbar palsy is the result of diseases affecting the lower cranial nerves (VII-XII). A speech deficit occurs due to paralysis or weakness of the muscles of articulation which are supplied by these cranial nerves.</p> <p>Bulbar palsy is sometimes also classified as non-progressive or progressive:</p> <ul style="list-style-type: none">• Non-progressive bulbar palsy is an uncommon condition of uncertain aetiology and there are few reports of it in the literature.• Progressive bulbar palsy can occur in children or adults and form a spectrum of severity. Progressive bulbar palsy is more common in elderly women. Starts of with dysarthria and/or dysphagia. Note: dysphagia without dysarthria is very unusual. The limb involvement comes later, perhaps in a couple of year. The median survival is 2–3 years. <p>Presentation</p> <ul style="list-style-type: none">• Tongue - weak and wasted and sits in the mouth with fasciculations.• Drooling - as saliva collects in the mouth and the patient is unable to swallow (dysphagia).• Dysphonia - a rasping tone due to vocal cord paralysis; a nasal tone if bilateral palatal paralysis.• Articulation - difficulty pronouncing "r"; unable to pronounce consonants as dysarthria progresses.
4.	<p>A 45 year old man has acute back pain radiating down to his legs and faecal incontinence. On examination, perineal sensory loss is noted. What is the SINGLE most likely diagnosis?</p> <p>A. Multiple sclerosis B. Lumbosacral disc herniation C. Degenerative disc disease D. Thoracic disc herniation E. Cauda equina syndrome</p> <p>Cauda Equina Syndrome would fit the best. Although lumbosacral disc herniation and degenerative process of the spine are causes of cauda equina syndrome it would be more accurate to put Cauda Equina Syndrome as the answer due to the perineal sensory loss.</p> <p>Cauda Equina Syndrome is a serious neurologic condition in which damage to the cauda equina causes loss of function of the nerve roots of the spinal canal below the termination (conus medullaris) of the spinal cord. Any lesion which compresses or disturbs the function of the cauda equina may disable the nerves although the most common is a central disc prolapse.</p>



	<p>Spinal cord compression or cauda equina syndrome are neurological emergencies that require immediate referral and intervention.</p> <p>The management of true cauda equina syndrome frequently involves surgical decompression.</p> <p>If there are red flag signs such as the possibility of cauda equina syndrome like in this case, referral to an orthopaedic surgeon or a neurosurgeon should be considered.</p> <p>Red flags that suggest cauda equina syndrome include:</p> <ul style="list-style-type: none">• Severe or progressive bilateral neurological deficit of the legs, such as major motor weakness with knee extension, ankle eversion, or foot dorsiflexion• Recent-onset urinary retention and/or urinary incontinence (caused by loss of sensation when passing urine).• Recent-onset faecal incontinence (due to loss of sensation of rectal fullness)• Perianal or perineal sensory loss (saddle anaesthesia or paraesthesia)
5.	<p>A 35 year old woman complains of dizziness. She awoke in the morning with a mild headache and the dizziness started when she sat up in bed. She felt that the room was spinning for a few minutes. If she is at rest the spinning stops but is aggravated again by movement. There are no other neurological symptoms. What is the SINGLE most likely diagnosis</p> <p>A. Brainstem stroke B. Benign paroxysmal positional vertigo C. Meniere's disease D. Vestibular neuronitis E. Acoustic neuroma</p> <p>All of the above options are popular topics in PLAB 1. Meniere's disease would usually involve tinnitus, deafness, and increased ear pressure in the case stem. Vestibular neuronitis, while similar to Meniere's does not have hearing loss. Acoustic neuroma as it grows into the cerebellopontine angle would involve cranial nerves V, VII, VIII; therefore, you would have a variation of symptoms involving these three nerves. Between options A and B, the symptoms in the case stem would not spontaneously resolve for option A.</p> <p>Benign paroxysmal positional vertigo</p> <p>Presentation:</p> <ul style="list-style-type: none">- Can be preceded by infections- Vertigo on turning over in bed, lying down, or sitting up from supine position <p>Diagnosis:</p> <ul style="list-style-type: none">- Hallpike's Manoeuvre positive <p>Treatment:</p> <ul style="list-style-type: none">- Mostly spontaneous resolution with exacerbations



6. A 33 year old patient presents with gradual onset of headache, neck stiffness, photophobia and fluctuating lost of consciousness. Cerebral spinal fluid shows lymphocytosis and decrease glucose but no organism on gram stain. A CT head was read as normal. What is the SINGLE most likely causative organism?

A. Neisseria meningitidis
B. Mycobacterium tuberculosis
C. Cytomegalovirus
D. Listeria monocytogenes
E. Streptococcus pneumoniae

Tuberculous meningitis would show lymphocytosis and decreased glucose.

Characteristic cerebrospinal fluid (CSF) findings in meningitis:

	Bacterial Meningitis	Viral Meningitis	Tuberculous Meningitis
Glucose	Low	Normal	Low
Protein	High	Normal to high	High
White cells	Mainly neutrophils	Increased lymphocytes	Neutrophils in early disease, Lymphocytes later

7. An 18 year old female presents to the Emergency Department with a generalized tonic-clonic seizure. Her seizure had lasted 20 minutes according to eyewitness accounts. Her SpO2 is currently 97% and she has already been given 2 doses of rectal diazepam but the seizures have not stopped. What is the SINGLE most appropriate management?

A. IV Lorazepam
B. IV Phenobarbital
C. IV Phenytoin
D. Refer to ICU
E. Immediate intubation

The diagnosis here is status epilepticus. The patient continues to have a seizure despite 2 doses of diazepam. Therefore, the next appropriate management would be phenytoin infusion. If the patient was not given two doses of rectal diazepam in the community, then we would administer IV lorazepam as first-line treatment in hospital. However, because two doses of diazepam was given (most likely in the community), we would move to second-line which would be IV phenytoin. Preference goes to IV phenytoin before using IV phenobarbital.

If this also fails then the next step would be referral to ICU and then consider intubation. For PLAB 1, know the initial management of all acute neurological emergencies.



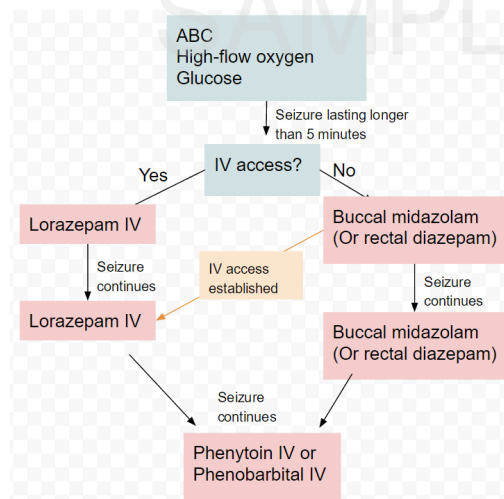
Note that buccal midazolam is usually first-line treatment in children, young people and adults with prolonged or repeated seizures in the community. However, if buccal midazolam is unavailable, rectal diazepam is used. Hence, the probable reason why rectal diazepam was used in this stem.

Note that the management for ongoing generalised tonic–clonic seizures (convulsive status epilepticus) in hospital is different from the community. Below we will only discuss management in hospital.

Status epilepticus

In hospital management:

- ABC protocol
- Give high-concentration oxygen
- Check blood glucose levels
- Secure intravenous access in a large vein
- Administer intravenous lorazepam as first-line treatment in hospital for ongoing generalised tonic–clonic seizures (convulsive status epilepticus)
- Administer intravenous diazepam if intravenous lorazepam is unavailable, or buccal midazolam if unable to secure immediate intravenous access. Administer a maximum of two doses of the first-line treatment (including pre-hospital treatment)
- If seizures continue, administer intravenous phenobarbital or phenytoin as second-line treatment in hospital
- If seizure still continues despite above (>30 minutes), referral to ICU





8. A 50 year old lady presents with a sudden onset of severe occipital headache associated with neck pain and vomiting. CT brain was inconclusive and a lumbar puncture was performed which revealed xanthochromia. What is the SINGLE most likely diagnosis?

- A. Bacterial meningitis
- B. Viral meningitis
- C. Migraine
- D. Subarachnoid haemorrhage**
- E. Subdural haemorrhage

Case stems for subarachnoid hemorrhage usually have middle-aged patients with sudden onset headaches that are severe in nature, which may be described as “the worst headache of their lives” or “thunderclap headache”. This is also important to note since there are middle cerebral artery [MCA] occlusions (due to ischaemia) and MCA berry aneurysms (causing subarachnoid haemorrhage). Ischaemic occlusions would usually have more stroke symptoms provided in the stem such as motor and sensory loss, rarely presenting with headache. Know how to differentiate each haemorrhage via their signs/symptoms, CT and lab results.

Subarachnoid hemorrhage

- Usually the result of bleeding from a berry aneurysm in the Circle of Willis

Presentation

- Sudden and severe occipital headache described as the “worst headache of my life” or “thunderclap headache”
- Neck stiffness or pain
- Vomiting, collapse, seizures

Associations

- Hypertension
- Polycystic kidney disease → Berry aneurysms are found in 10% of patients with autosomal dominant adult polycystic kidney disease
- Ehlers Danlos syndrome

Diagnosis

- CT brain
- Lumbar puncture
 - Only done if CT is inconclusive + no contraindications
 - The CSF of a lumbar puncture → bloody then xanthochromic (bilirubin)

Treatments for SAH are rarely or almost never asked in at this level. Save your brain space and memorize other important information.



9.	<p>A 70 year old woman was brought into the Emergency Department by her son for increasing confusion and slurred speech. On examination, she was oriented to time, place and person. Neurological examination was positive for bilateral past pointing and truncal ataxia but no nystagmus. Blood tests were within normal limits. Where is the SINGLE most likely location of her lesion?</p> <p>A. Bilateral basal ganglia B. Left temporo-parietal lobe C. Cerebellar vermis D. Left cerebellar lobe E. Left-sided frontal lobe</p> <p>For PLAB 1, stroke questions come in various forms ranging from the anatomical locations of the lesion, investigations and management. Pay special attention to the anatomy of the lesions especially the vascular distribution and the functions of the different parts of the brain. Key clues to cerebellum lesions: dysdiadochokinesia, ataxia, nystagmus, intention tremor, slurred speech, hypotonia, past pointing.</p> <p>Stroke (cerebellar lesion) Presentation:</p> <ul style="list-style-type: none">• Dysdiadochokinesia, ataxia, nystagmus, intention tremor, slurred speech, hypotonia, past pointing• Usually sudden onset with possible further progression that takes place over hours• May have underlying ischaemic heart disease, carotid bruits, atrial fibrillation <p>Diagnosis:</p> <ul style="list-style-type: none">• Non-contrast CT brain - initial investigation• MRI brain - more sensitivity <p>Treatment:</p> <ul style="list-style-type: none">• Ischaemic stroke - thrombolysis (alteplase) → aspirin• Maintain oxygen saturation, glucose control, blood pressure control• Maintain nutrition and hydration• Early mobilization
10.	<p>A 26 year old woman complains of headache of 1 day duration that has been intensifying in severity over the last few hours. There is discomfort while turning her head and cannot tolerate bright lights. On examination, there is no papilloedema nor rashes. Kernig's sign is negative. Lumbar puncture results reveal: elevated protein, normal glucose, and lymphocytosis. She is generally unwell but haemodynamically stable. What is the single most likely diagnosis?</p> <p>A. Viral meningitis B. Migraine C. Aseptic meningitis D. Bacterial meningitis E. TB meningitis</p>



	<p>Know the types of meningitis for PLAB 1 since it overlaps in quite a few topics on the exam (i.e. neurology, emergency, and infectious diseases). Pay particular attention to the lumbar puncture results to differentiate each. Kernig's sign does not need to be present for it to be a diagnosis of meningitis. If you forget the lab results, look at the history: viral meningitis has less severe symptoms than bacterial meningitis which can progress rapidly and produce signs of septic shock. TB meningitis is more gradual with: fever, weight loss, headache with progression to focal deficit +/- altered consciousness.</p> <p>Presentation</p> <ul style="list-style-type: none">• Classic: headache, fever, photophobia, neck stiffness• Cranial palsies: CN III, IV, VI, VII <p>Diagnosis</p> <p>Lumbar puncture (viral meningitis CSF):</p> <ul style="list-style-type: none">• Normal or high CSF pressure• Increased lymphocytes• Elevated protein• Glucose normal <p>Treatment:</p> <ul style="list-style-type: none">• Regardless of whether meningitis is bacterial, viral, or TB as a cause – give antibiotics before performing CT brain and/or lumbar puncture• If no rash: IV cefotaxime or [IV ceftriaxone + IV vancomycin + IV ampicillin]• If raised intracranial pressure: give mannitol
11.	<p>A 72 year old man with a history of hypertension and an ex-smoker presents to the clinic with his wife due to change in behavior. For the past year and a half, he has slowly become socially withdrawn with a decrease interest in his usual hobbies. There are times where he forgets to groom himself and there was an incident once where his wife found him urinating on the sofa. Over the past few months there has been a gradual struggle with finding the right word choice while talking. What is the SINGLE most likely diagnosis?</p> <p>A. Depression B. Frontotemporal dementia C. Alzheimer's disease D. Vascular dementia E. Lewy body disease</p> <p>The keys in this case stem: patient has been struggling with word choice (temporal lobe) and disinhibition / urinating on the sofa (frontal lobe). Alzheimer's disease would usually present with memory loss first before changes in personality. Vascular dementia would have a "step-wise progression" and they would have had some sort of previous cardiac/vascular event in the stem. Lewy body disease would require a clue into having some parkinsonian symptoms.</p> <p>Frontotemporal dementia</p> <p>Presentation:</p> <ul style="list-style-type: none">- Typical PLAB 1 presentation: elderly (>65 years)



	<ul style="list-style-type: none">- The history will be from a friend, carer, or family member- Personality changes, change in habits of daily activities- Memory is usually intact- Disinhibition (may be sexual)- On examination, may have difficulty initiating gait (frontal lobe) <p>Diagnosis:</p> <ul style="list-style-type: none">- MRI brain – depending different subtypes will have atrophy of frontal and paralimbic areas, anterior or inferior lobes <p>Treatment:</p> <ul style="list-style-type: none">- No pharmaceutical therapy available- If sexual disinhibition, can give cimetidine or spironolactone
12.	<p>A 36 year old woman presents to clinic with intermittent episodes of dizziness that lasts 1 day each time for the past 6 months. Recently, she has experienced ringing and increased pressure in her ears. Her husband noticed that she has had to increase the volume of her television. MRI head is normal. What is the SINGLE most likely diagnosis?</p> <p>A. Benign paroxysmal positional vertigo B. Vestibular schwannoma C. Vestibular neuronitis D. Cervical spondylosis E. Meniere's disease</p> <p>This is a classic case of Meniere's disease. All four clues are present: dizziness, tinnitus, deafness, and increased feeling of pressure in the ear. For PLAB 1, know how to differentiate between Meniere's with options A to C. These topics frequently appear on the neurology component of the exam. Note that option B is ruled out due to the normal MRI. In option C, the case would need to give a history of bacterial or viral infection. In option D, there would be other manifestations, such as weakness or paresthesia of the limbs.</p> <p>Meniere's disease</p> <p>Presentation:</p> <ul style="list-style-type: none">• Dizziness, tinnitus, deafness, increased feeling of pressure in the ear. Note: Vertigo is usually the prominent symptom• Episodes last minutes to hours• MRI is normal• Usually a female >> male ; 20-60 years old• Typically symptoms are unilateral but bilateral symptoms may develop after a number of years <p>Treatment:</p> <ul style="list-style-type: none">• Acute attacks: buccal or intramuscular prochlorperazine. Admission is sometimes required



13.	<p>A 50 year old woman presents with facial asymmetry. She noted in the morning that the right hand corner of her mouth was drooping. She had some pain behind her right ear yesterday and complains of dryness in her right eye. On examination, she is unable to move her right side of her face. What is the SINGLE most likely diagnosis?</p> <p>A. Ramsey-Hunt syndrome B. Bell's palsy C. Multiple sclerosis D. Stroke E. Parotid tumour</p> <p>Bell's palsy Presentation:</p> <ul style="list-style-type: none">- Unilateral facial weakness ; facial droop- Drooling- Difficulty in eye closure- Associated with pregnancy and diabetes <p>Treatment:</p> <ul style="list-style-type: none">- Within 72 hours onset, give prednisolone- Eye protection with eye patch
14.	<p>A 5 year old girl is brought to the hospital by her mother with complaints of sudden right facial weakness, numbness and pain around her ear. She reports no other symptoms. On examination, her right eyebrow is unable to raise and the right hand corner of her mouth is drooping. What is the SINGLE most likely diagnosis?</p> <p>A. Subarachnoid haemorrhage B. Bell's palsy C. Stroke D. Transient ischaemic attack E. Subdural haemorrhage</p> <p>Bell's palsy Presentation:</p> <ul style="list-style-type: none">- Unilateral facial weakness ; facial droop- Drooling- Difficulty in eye closure- Associated with pregnancy and diabetes <p>Treatment:</p> <ul style="list-style-type: none">- Within 72 hours onset, give prednisolone- Eye protection with eye patch



15.	<p>A 55 year old man presents to clinic with shortness of breath and increased daytime sleepiness. He drinks 25 units of alcohol weekly. On examination, his BMI is 35 kg/m², blood pressure is 150/70 mmHg, and respiratory exam was normal. His wife complains that he snores loudly at night. What is the SINGLE most appropriate initial investigation likely to confirm his diagnosis?</p> <p>A. Polysomnography B. Pulse oximetry C. EEG D. Multiple sleep latency test E. Epworth sleepiness scale</p> <p>This is a diagnosis of obstructive sleep apnoea syndrome. In PLAB 1, this topic would overlap between neurology and respiratory medicine. The typical PLAB 1 clues: a middle-aged to elderly male who works at the office, obese, with history of hypertension and/or diabetes, and “snoring loudly at night”. Note that the respiratory exam in uncomplicated obstructive sleep apnoea would be normal unless the case also presents with a history of asthma exacerbation or respiratory failure type II. Beware of what the PLAB 1 question is asking: initial test is pulse oximetry but the definitive investigation is polysomnography (gold standard). Multiple sleep latency test is the definitive investigation for narcolepsy.</p> <p>Obstructive sleep apnoea syndrome Presentation:</p> <ul style="list-style-type: none">- Middle aged to elderly male- Increased daytime sleepiness, fatigue, sleep disruption- Snoring loudly at night- Associated with hypertension, diabetes, obesity <p>Diagnosis:</p> <ul style="list-style-type: none">- Pulse oximetry, overnight study of breathing pattern (initial investigation)- Polysomnography (gold standard) <p>Treatment:</p> <ul style="list-style-type: none">- Conservative: weight loss and reduce alcohol consumption- Continuous positive airway pressure (CPAP)
16.	<p>A 55 year old male had a recent transient ischaemic attack which he recovered from. He had a stroke 4 years ago. ECG shows a heart rate of 80 bpm in sinus rhythm. He is already on aspirin 75 mg and antihypertensive drugs. What SINGLE medication(s) should be offered?</p> <p>A. Clopidogrel only B. Aspirin 300 mg C. Warfarin D. Clopidogrel and statins E. Add statin only</p> <p>Post management of Transient ischaemic attack (TIA)</p> <p>Clopidogrel (75 mg daily) is the preferred long-term antiplatelet.</p>



	<p>If clopidogrel is contraindicated or not tolerated, give a combination of modified-release dipyridamole (200 mg twice daily) and low dose aspirin</p> <p>Ensure a statin has been offered as soon as possible after a TIA.</p>
17.	<p>A 24 year old college student presents to A&E with nausea, vomiting, headache, neck stiffness and a fever of 38.4°C. What is the SINGLE most appropriate empirical antibiotic to be started immediately?</p> <p>A. Intravenous Ceftriaxone B. Intramuscular Benzylpenicillin C. Intravenous Gentamicin D. Intravenous Tazobactam E. Intravenous Amoxicillin</p> <p>She has signs of meningitis. Intravenous Ceftriaxone needs to be administered immediately. In a hospital setting, give intravenous third generation cephalosporin antibiotics (Ceftriaxone or Cefotaxime)</p> <p>If this exact same questions was given but she presented to her GP (or was found outside the hospital), then Benzylpenicillin IM or IV would be the correct answer. If you suspect meningitis and patient is not yet in the hospital give IM/IV benzylpenicillin and send patient to the hospital.</p> <p>If this exact same question was given, but there was a diagnosis of Listeria, then IV amoxicillin and gentamicin would be the correct answer</p> <p>If this exact same question was given, but she is penicillin or cephalosporin allergic, then chloramphenicol would be the answer. If the patient has a history of immediate hypersensitivity reaction to penicillin or to cephalosporins the BNF recommends using chloramphenicol.</p> <p>Investigations Generally, treatment for meningitis should be started before doing any investigations due to the seriousness of the disease.</p> <p>Rash If patient has got a rash, then perform blood culture as the diagnosis is most likely meningococcal septicaemia. The causative organism is Neisseria meningitides.</p> <p>If there is no rash then a lumbar puncture would be a better answer, but this can only be done if there are no signs of raised intracranial pressure</p> <p>Management of contacts Prophylaxis (oral ciprofloxacin or rifampicin) needs to be offered to household and close contacts of patients affected with meningococcal meningitis</p>



	<p>Summary</p> <p><i>Pre-hospital setting + Suspect meningococcal disease → IM benzylpenicillin</i></p> <p><i>Hospital setting + Suspect meningococcal disease → IV cefotaxime</i></p> <p><i>Meningitis caused by listeria → IV amoxicillin and gentamicin</i></p> <p><i>Hypersensitivity reaction to penicillin or cephalosporins → chloramphenicol</i></p> <p><i>Prophylaxis to close contact (meningococcal meningitis) → oral ciprofloxacin or rifampicin</i></p>
18.	<p>A 55 year old man presents to clinic for gradual weakness of his arms bilaterally over the past year. He is now unable to lift heavy loads above his head and has difficulty breathing while going up the stairs. In the past month, he has noticed hoarseness and difficulty in swallowing liquids. On examination, there were muscle atrophy and weakness in the trunk, neck, back and both proximal upper limbs for lower motor signs. Deep tendon reflexes the upper and lower limbs were positive for upper motor signs with atrophy of the tongue. Hoffman's sign was positive and autoimmune panel is normal. What is the SINGLE most likely diagnosis?</p> <p>A. Myasthenia gravis B. Guillain-Barre syndrome C. Multiple sclerosis D. Amyotrophic lateral sclerosis E. Polymyositis</p> <p>Amyotrophic lateral sclerosis (ALS) is the most common form of motor neuron disease in addition to multiple sclerosis (MS). Know the distinction between both for PLAB 1 as they will commonly appear as either a question or option. MS usually would present in episodes intermittently and affect different anatomic locations. Myasthenia gravis would present with weakness and fatigue along with a positive autoimmune panel. Guillain-Barre syndrome would usually give a clue to a prior infection. Polymyositis would affect lower limbs first with fatigue.</p> <p>Amyotrophic lateral sclerosis</p> <p>Presentation:</p> <ul style="list-style-type: none">• Progressive weakness of bulbar, limb, thoracic and abdominal muscles• Oculomotor, sphincter, cognitive functions are usually spared• Late stages - swallowing difficulty and hoarseness <p>Diagnosis:</p> <ul style="list-style-type: none">• Clinical diagnosis via diagnostic criteria by EFNS guidelines <p>Treatment:</p> <ul style="list-style-type: none">• Multidisciplinary care• Neuroprotective medication: riluzole• Medications to treat respiratory symptoms, drooling, insomnia, fatigue, and psychological symptoms• Genetic testing and counseling for family



19.	<p>A 41 year old woman presents to clinic with vertigo, vomiting and a feeling of aural fullness. The attacks of vertigo can last for several hours. She also states that she has difficulty hearing. She had a similar attack last year. Recently, she has experienced ringing in her ears. MRI scan was done and was found to be normal. What is the SINGLE most likely diagnosis?</p> <p>A. Benign paroxysmal positional vertigo B. Vestibular schwannoma C. Vestibular neuronitis D. Cervical spondylosis E. Meniere's disease</p> <p>This is a classic case of Meniere's disease. All four clues are present: dizziness, tinnitus, deafness, and increased feeling of pressure in the ear.</p> <p>It is important to remember that in Meniere's disease, the attacks can last for several hours at a time, which differentiates it from benign paroxysmal positional vertigo.</p> <p>Meniere's disease Presentation:</p> <ul style="list-style-type: none">• Dizziness, tinnitus, deafness, increased feeling of pressure in the ear. Note: Vertigo is usually the prominent symptom• Episodes last minutes to hours• MRI is normal• Usually a female >> male ; 20-60 years old• Typically symptoms are unilateral but bilateral symptoms may develop after a number of years <p>Treatment:</p> <ul style="list-style-type: none">• Acute attacks: buccal or intramuscular prochlorperazine. Admission is sometimes required
20.	<p>A 19 year old female with previous history of repeated pain over the medial canthus and chronic use of nasal decongestants, presents with abrupt onset of a severe headache, fever with chills and rigor, diplopia on lateral gaze, moderate proptosis and chemosis. On examination optic disc is congested. Which of the following is the SINGLE most likely diagnosis?</p> <p>A. Cavernous sinus thrombosis B. Orbital cellulitis C. Acute ethmoidal sinusitis D. Orbital apex syndrome E. Migraine</p> <p>This case stem is rare to appear in PLAB 1, but know the presentation of how the question will appear to differentiate it from options B, C, and E which occur more frequently in the exam. Cavernous sinus thrombosis can appear as an option to those questions.</p>



	<p>Cavernous sinus thrombosis</p> <p>Presentation:</p> <ul style="list-style-type: none">- Headache – can be severe intensity- Chemosis, oedematous eyelids, proptosis, painful ophthalmoplegia- Fever- Usually preceded by sinusitis <p>Diagnosis:</p> <ul style="list-style-type: none">- CT/MRI venography <p>Treatment:</p> <ul style="list-style-type: none">- Referral to neurosurgery- Antibiotics- Anticoagulation – heparin- +/- Corticosteroids and surgical drainage
21.	<p>A 22 year old female was hit on the side of her head with a cricket ball during a match. She initially lost consciousness but spontaneously recovered but is now experiencing increasing headache with one episode of vomiting. Her roommate has noticed that there is a slowing of responses. What is the SINGLE most likely diagnosis?</p> <p>A. Subarachnoid haemorrhage B. Subdural haemorrhage C. Epidural haemorrhage D. Simple seizure E. None of the above</p> <p>SAMPLE</p> <p>PLAB 1 case stem for epidural haemorrhage usually have a young athletic patient that had a head injury during a sports match. They will experience a “lucid interval” before having a decrease in mental function. The stem may or may not give you a CT brain result: “bi-convex” extra-axial mass.</p> <p>Epidural haemorrhage</p> <p>Presentation:</p> <ul style="list-style-type: none">- Head injury mostly to the side of the head, arterial bleed- Loss of consciousness immediate, then recovers spontaneously followed by lucid interval- Then patient will have a decline in mental function <p>Diagnosis:</p> <ul style="list-style-type: none">- CT brain – bi-convex extra-axial mass <p>Treatment:</p> <ul style="list-style-type: none">- Referral immediately to neurosurgery- Burr hole over pterion then craniotomy and evacuation of haematoma



22. A 26 year old man complains of pins and needles in his feet. He feels his legs getting weaker in the past 2 days. He gives a history of feeling unwell and having diarrhoea last week which has resolved. On examination, he has mild bilateral facial weakness, reflexes are diminished and has impaired sensation in his legs. What is the SINGLE most likely diagnosis?

- A. Polymyositis
- B. Multiple sclerosis
- C. Guillain-Barré syndrome**
- D. Myasthenia Gravis
- E. Motor neuron disease

The symptoms here are classic for Guillain-Barré syndrome.

Guillain-Barré syndrome

- Is a disorder causing demyelination characterised by weakness, paresthesia and hyporeflexia
- Usually precedes an infection, usually respiratory or gastrointestinal tract. This association with preceding infection suggests that antibodies to the infectious organism also attack antigens in peripheral nerve tissue.

In the stem, there would usually be a history of gastrointestinal or respiratory infection from anywhere between a few days to 3 weeks prior to the onset of weakness.

Presentation:

- Weakness
 - Presents with an ascending pattern of progressive symmetrical weakness, starting in the lower extremities
 - Reaches a level of maximum severity two weeks after initial onset of symptoms
 - Facial weakness, dysphasia or dysarthria
 - In severe cases, muscle weakness may lead to respiratory failure.
- Pain
 - Neuropathic pain, particularly in the legs
- Reflexes
 - Reduced or absent
- Sensory
 - Paresthesia and sensory loss, starting in the lower extremities

23. A 64 year old man presents with a history of left sided hemiparesis and slurred speech. His symptoms resolved and he was absolutely fine 6 hours after the episode. What is the SINGLE most appropriate prophylactic regimen?

- A. Aspirin 300mg for 2 weeks followed by aspirin 75 mg
- B. Aspirin 300mg for 2 weeks followed by aspirin 75 mg and dipyridamole 200mg
- C. Clopidogrel 75mg**
- D. Dipyridamole 200mg
- E. Aspirin 300mg for 2 weeks



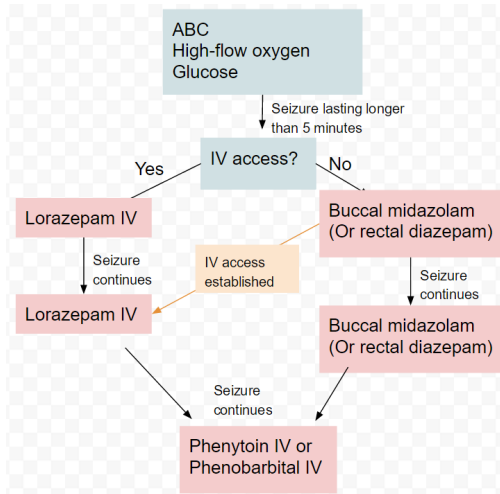
	<p>Post management of Transient ischaemic attack (TIA)</p> <p>Clopidogrel (75 mg daily) is the preferred long-term antiplatelet.</p> <p>If clopidogrel is contraindicated or not tolerated, give a combination of modified-release dipyridamole (200 mg twice daily) and low dose aspirin</p> <p>Ensure a statin has been offered as soon as possible after a TIA.</p>
24.	<p>A 2 year old child fell from his bicycle and immediately ceased breathing and became pale. This was accompanied by a stiffening, clonic jerks of the limbs and loss of consciousness. He regains full consciousness a few seconds later. What is the SINGLE most likely diagnosis?</p> <p>A. Reflex anoxic seizures B. Epilepsy C. Cardiac arrhythmia D. Postural orthostatic tachycardia syndrome E. Pure autonomic failure</p> <p>Reflex anoxic seizures</p> <p>Reflex anoxic seizures also known as “white breath-holding attacks” are paroxysmal, spontaneously-reversing brief episodes of asystole triggered by pain, fear or anxiety. Anoxic seizures are non-epileptic events caused by a reflex asystole due to increased vagal responsiveness. They are often misdiagnosed as epilepsy.</p> <p>During this time the child is deathly pale and may have hypotonia, rigidity, upward eye deviation, clonic movements, and urinary incontinence. The episode is usually brief (30-60 seconds) and recovery is rapid.</p> <p>Typical age is 6 months to 2 years (but may be much older).</p>
25.	<p>A 69 year old man presented to clinic with worsening balance and difficulty walking over the past year. Recently, he has been prone to falling more frequently and his wife notes he forgets to turn off the stove or water taps. He has also started to have urinary urgency and incontinence. On examination he is walking with a cane and has difficulty turning. What is the SINGLE most likely diagnosis?</p> <p>A. Parkinson’s disease B. Normal pressure hydrocephalus C. Alzheimer’s disease D. Dementia with Lewy bodies E. Frontotemporal dementia (Pick’s disease)</p> <p>This is a classic presentation: gait disturbance, sphincter compromise, and dementia. Note to differentiate normal pressure hydrocephalus (NPH) with the rest of the dementias on the list of options above. They are frequent neurology topics for PLAB 1. NPH has a much slower</p>



	<p>progressive memory loss than Alzheimer's.</p> <p>Normal pressure hydrocephalus</p> <p>Presentation:</p> <ul style="list-style-type: none">• TRIAD: gait disturbance, sphincter compromise (urinary urgency +/- incontinence), cognitive dysfunction• Most common in elderly• CT / MRI brain: enlarged lateral and third ventricles <p>Diagnosis:</p> <ul style="list-style-type: none">• Clinical diagnosis with CT/MRI brain signs of enlarged lateral and third ventricles• Lumbar infusion test (intrathecal infusion test) - new NICE guidelines option <p>Treatment:</p> <ul style="list-style-type: none">• Cerebrospinal fluid (CSF) shunting: ventriculoperitoneal, ventriculopleural, or ventriculoatrial
26.	<p>A 32 year old female who is 18 months pregnant presents to the Emergency Department. She has a history of epilepsy and is on medication for it however she was non-compliant and did not take her medication for the past 5 days. She had a tonic-clonic seizure earlier in the morning lasting for 5 minutes and was brought in by ambulance. She has IV access. While waiting for a doctor, she starts to have another generalized tonic-clonic seizure. What is the SINGLE most appropriate management?</p> <p>A. IV Lorazepam B. IV Phenobarbital C. IV Phenytoin D. Refer to ICU E. Rectal Diazepam</p> <p>Seizures lasting longer than 5 minutes should be treated urgently with intravenous lorazepam (repeated once after 10 minutes if seizures recur or fail to respond). Intravenous diazepam is effective but it carries a high risk of thrombophlebitis (reduced by using an emulsion formulation). Absorption of diazepam from suppositories is far too slow for treatment of status epilepticus.</p> <p>The fact that she is pregnant does not change the management of a convulsive status epilepticus.</p> <p><i>The management for ongoing generalised tonic-clonic seizures (convulsive status epilepticus) in hospital is different from the community. Below we will only discuss management in hospital.</i></p> <p>Status epilepticus</p> <p>In hospital management:</p> <ul style="list-style-type: none">• ABC protocol• Give high-concentration oxygen• Check blood glucose levels• Secure intravenous access in a large vein



- Administer intravenous lorazepam as first-line treatment in hospital for ongoing generalised tonic–clonic seizures (convulsive status epilepticus)
- Administer intravenous diazepam if intravenous lorazepam is unavailable, or buccal midazolam if unable to secure immediate intravenous access. Administer a maximum of two doses of the first-line treatment (including pre-hospital treatment)
- If seizures continue, administer intravenous phenobarbital or phenytoin as second-line treatment in hospital
- If seizure still continues despite above (>30 minutes), referral to ICU



27. An 8 year old girl is brought to the clinic due to abnormal behavior noticed by her teacher. She would stare blankly towards the wall, sometimes with an upturning of the eyes for around 15 seconds, then blinks. This would occur several times during the day. The teacher notes that while she would resume her activity after these events she would be tired and unable to concentrate. What is the SINGLE most likely diagnosis?

- A. Simple partial seizure
- B. Complex partial seizure
- C. Absence seizure**
- D. Generalized seizure
- E. Febrile seizure

In PLAB 1 stems, absence seizures would usually be a child (<10 years) with either the parent or teacher noticing that the patient is “daydreaming” often and when they resume their studies they are not able to perform well.

Absence seizure

Presentation:

- Child usually <10 years old
- Loss of awareness (“daydreaming”), stare blankly into space, will not respond to their surroundings
- May be accompanied by upturning of eyes, other repetitive movements



	<ul style="list-style-type: none">- Will return to normal activities after seizure but may not perform well and feel tired- No photosensitivity- Maybe triggered by hyperventilation <p>Diagnosis:</p> <ul style="list-style-type: none">- EEG- Check FBC, glucose levels, ECG, MRI for other underlying causes <p>Treatment:</p> <ul style="list-style-type: none">- If recurring, sodium valproate or ethosuximide
28.	<p>A 50 year old man, known case of hypertension and deep vein thrombosis, presents to the Emergency Department with a sudden onset of vision loss in his right eye. It is painless and lasted for approximately 5 minutes. He describes the vision loss as a 'black curtain coming down'. On examination, there is a bruit on his neck. What is the SINGLE most likely diagnosis?</p> <p>A. Retinal vein thrombosis B. Retinal artery occlusion C. Amaurosis Fugax D. Optic neuritis E. Acute angle glaucoma</p> <p>Remember to focus on causes of unilateral vision loss. Know how to differentiate all the above options.</p> <p>For amaurosis fugax, this is a classic case stem: sudden, painless, unilateral vision loss and description of a "black curtain coming down".</p> <p>The cause is most likely due to retinal artery emboli secondary to atrial fibrillation according to the history.</p> <p>Options A and B presents as painless unilateral vision loss but their duration would be much longer and the age group would be much older (>65 years).</p> <p>Optic neuritis would have clues in the stem of multiple sclerosis.</p> <p>Option E would produce a painful vision loss and keywords such as "haloes" would be seen.</p> <p>Amaurosis Fugax</p> <ul style="list-style-type: none">• Painless transient monocular visual loss (i.e. loss of vision in one eye that is not permanent)• It is indicative of retinal ischaemia, usually associated with emboli or stenosis of the ipsilateral carotid artery <p>Presentation:</p> <ul style="list-style-type: none">• Sudden, unilateral vision loss; "black curtain coming down"• Duration: 5-15 minutes; resolves within < 24 hours• Associated with stroke or transient ischaemic attack (TIA) and its risk factors (i.e. hypertension, atherosclerosis)



	<ul style="list-style-type: none">• Has an association with giant cell arteritis
29.	<p>A previously healthy 20 year old woman presents to the Emergency Department with the complaint of “falling out.” She was with her friends at a restaurant when she felt faint and, according to friends, lost consciousness for about a minute. There was no seizure activity noted, but the friends did notice her arms twitching irregularly. She is now acting normally. She denies chest pain or palpitations, and her electrocardiogram is normal. What is the SINGLE most likely diagnosis?</p> <p>A. Hypoglycaemia B. Vertigo C. Prolonged QT syndrome D. Vasovagal syncope E. Paroxysmal supraventricular tachycardia</p> <p>Have a basic idea of the major causes of syncope for PLAB 1. The most common amongst young women would be vasovagal syncope likely due to hypotension and stimulated by one of the following triggers: pain, fear, excitement, and standing for a prolonged period.</p> <p>Vasovagal syncope Presentation:</p> <ul style="list-style-type: none">• Young adult more common in women• Stimulated by either emotional stress or orthostatic stress• Sweating, pallor, nausea <p>Diagnosis:</p> <ul style="list-style-type: none">• Clinical history under recommended diagnostic criteria (ESC guidelines)• ECG to rule out other pathology <p>Treatment:</p> <ul style="list-style-type: none">• Reassurance and counseling of avoidance of triggers• Educate how to recognize prodromal symptoms and perform manoeuvres to stop the syncope• Tilt table training
30.	<p>A 50 year old woman presents following a fall. She reports pain and weakness in her hands for several months, swallowing difficulties, and has bilateral wasting of the small muscles of her hands. Her back and shoulders feel stiff. The reflexes in her upper limbs are absent. Both legs show increased tone and hyperreflexia. Pain and temperature sensation are impaired in the upper limbs. She is also noted to have a facial palsy. What is the SINGLE most likely diagnosis?</p> <p>A. Multiple sclerosis B. Motor neuron disease C. Syringobulbia D. Syringomyelia E. Myasthenia gravis</p>



There are two close answers here: Syringobulbia and syringomyelia.

Syringomyelia does not have any cranial nerve involvement but syringobulbia does and thus causing the facial palsy in the above question.

Syringomyelia and Syringobulbia

Syringomyelia is a rare condition in which there is fluid-filled tubular cyst (syrinx) within the central, usually cervical, spinal cord. The syrinx can elongate, enlarge and expand into the grey and white matter and, as it does so, it compresses the nervous tissue of the corticospinal and spinothalamic tracts and the anterior horn cells. This leads to various neurological symptoms and signs, including pain, paralysis, stiffness and weakness in the back, shoulders and extremities. Syringomyelia may also cause loss of extreme temperature sensation, particularly in the hands, and a cape-like loss of pain and temperature sensation along the back and arms.

Syringobulbia occurs when the syrinx extends into the brainstem. This may affect one or more cranial nerves, resulting in facial palsies. Sensory and motor nerve pathways may be affected by interruption and/or compression of nerves.

Note: Progression of symptoms and deterioration occur over many years for syringomyelia and syringobulbia

Symptoms of both Syringomyelia and Syringobulbia

- Damage to the spinal cord often leads to progressive weakness in the arms and legs, stiffness in the back, shoulders, arms, or legs, and chronic, severe pain. These can be present at presentation.
- Other symptoms may include headaches, a loss of the ability to feel extremes of hot or cold (especially in the hands), and loss of bladder and other functions.
- Pain and temperature sensation are lost due to spinothalamic tract damage.
- Classically, the sensation loss is experienced in a shawl-like distribution over the arms, shoulders and upper body.
- Dysaesthesia (pain experienced when the skin is touched) is common.
- Light touch, vibration and position senses in the feet are affected as the syrinx enlarges into the dorsal columns.
- Muscle wasting and weakness begins in the hands and then affects the forearms and shoulders.
- Tendon reflexes are lost.



31.	<p>A 55 year old chronic alcoholic who lives alone, brought in the emergency department having been found confused at home after a fall. He complains of a headache and gradually worsening confusion. What is the SINGLE most likely diagnosis?</p> <p>A. Vascular dementia B. Hypoglycemia C. Extradural haematoma D. Subdural haematoma E. Pick's dementia</p> <p>A chronic alcoholic with a history of fall with progressive confusion over the last couple of days points towards the diagnosis of chronic subdural haemorrhage.</p> <p>Subdural haematoma may be acute or chronic. In the chronic subdural haematoma, symptoms may not be apparent for several days or weeks. Symptoms of subdural haematomas are: fluctuating level of consciousness, \pm insidious physical or intellectual slowing, sleepiness, headache, personality change and unsteadiness.</p> <p>Chronic subdural haematoma occurs in the very old or in severe alcoholics. A shrunken brain is rattled around the head by minor trauma, tearing venous sinuses. Over several days or weeks, mental function deteriorates as haematoma forms. CT scan is diagnostic, and surgical evacuation provides dramatic cure.</p> <p>Remember in PLAB, chronic subdural haematoma usually presents as an elderly, on anticoagulation or an alcoholic who may have history of fall. Slow onset of symptoms compared to epidural haematoma.</p>
32.	<p>A 45 year old man has been admitted for an elective surgery. 2 days later he develops agitation, sweating and complains of seeing snakes on the hospital wall. A history of chronic alcoholic abuse is revealed and chlordiazepoxide has been started. What is the SINGLE most appropriate next course of action?</p> <p>A. Add Diazepam B. Add Acamprosate C. Add Disulfiram D. Add Thiamine E. Add Naloxone</p> <p>In regards to his diagnosis of chronic alcoholic abuse, many physicians would add in thiamine (IV Pabrinex) to the mix to prevent Wernicke's encephalopathy even though he is not showing any signs of Wernicke's encephalopathy.</p> <p>Parenteral thiamine should be prescribed for treatment of suspected or confirmed Wernicke's encephalopathy, and for prophylaxis in alcohol-dependent patients attending hospital for acute treatment (including treatment unrelated to alcohol dependence).</p>



	<p>Acute Alcohol Withdrawal</p> <p>Patients often present with anxiety, tremor, hyperactivity, sweating, nausea and retching, tachycardia, hypertension and mild pyrexia. Symptoms peak at at 12-30 hours and subside by 48 hours</p> <p>Medications used in alcoholics</p> <ul style="list-style-type: none">• Benzodiazepines for acute withdrawal (NHS commonly uses Chlordiazepoxide) Chlordiazepoxide is used as sedation• IV Pabrinex (Thiamine) (vitamin B1) is used to prevent Wernicke's encephalopathy which is a neuropsychiatric disorder caused by thiamine deficiency which is most commonly seen in alcoholics• Disulfiram: promotes abstinence - alcohol intake causes severe reaction due to inhibition of acetaldehyde dehydrogenase. Patients should be aware that even small amounts of alcohol (e.g. In perfumes, foods, mouthwashes) can produce severe symptoms. <i>Example of when to use disulfiram in PLAB: 40 year old man wants medication to serve as a deterrent when he takes alcohol</i>• Acamprosate: reduces craving, improves abstinence in placebo controlled trials. <i>Example of when to use disulfiram in PLAB: 40 year old man wants some medication to help him reduce cravings</i>
33.	<p>An 82 year old lady had an ischaemic stroke that was confirmed with brain imaging. She has no drug allergies and no other comorbidities. She was put on aspirin 300mg daily for two weeks. What is the SINGLE most appropriate medication to be given after the course of Aspirin is completed?</p> <p>A. Clopidogrel B. Ticagrelor C. Combination of modified-release dipyridamole and low dose aspirin D. Abciximab E. No additional medication needed long term</p> <p>Just a few years ago, the answer would be combination dipyridamole and low dose aspirin. However, NICE has recently published a technology appraisal in 2010 on the use of clopidogrel and dipyridamole.</p> <p>Clopidogrel is now recommended by NICE ahead of combination use of aspirin plus modified release (MR) dipyridamole in people who have had an ischaemic stroke</p>



34. A 24 year old woman complains of progressive left leg stiffness and clumsiness over the few weeks. There has also been a history of intermittent blurry vision that spontaneously resolves each time. On examination, there is increased tone, left leg power of 3/5, and upward plantars. A pale disc was seen in ophthalmoscopy. All other neurological examinations were normal. What is the SINGLE most appropriate initial management?

- A. Non-steroidal anti-inflammatory drug
- B. Methotrexate
- C. Interferon-beta
- D. Methylprednisolone**
- E. Bed rest

This patient is presenting with upper motor neuron signs and optic neuritis. The diagnosis is relapsing-remitting multiple sclerosis. The patient is eligible for interferon-beta management; however, the question asks for the most appropriate initial management, which in this case would be methylprednisolone. Note that steroids can be given orally or via IV here; there is no difference in terms of efficacy but if the patient was to be admitted then IV is usually the choice. Be wary of NSAIDs: if the patient was to be presenting with pain, you must confirm where this pain is coming from. If it is neuropathic pain then you would not give NSAIDs.

Multiple Sclerosis

Presentation:

Variety of symptoms involving motor and sensory mainly of the brainstem and cerebellum. It may be easier to divide them into groups to remember.

- *1. Transverse myelitis:*
 - Weakness, sensory symptoms
 - Urinary urgency and retention
 - Flexor spasms
 - Spastic quadriparesis or paraparesis
- *2. Brainstem:*
 - Ataxia
 - Diplopia
 - Dysarthria
 - Facial numbness
 - Ophthalmoplegia
 - Gaze palsy
- *3. Cerebellum*
 - Ataxia



	<ul style="list-style-type: none">- Dysarthria- Nystagmus <ul style="list-style-type: none">• PLAB 1 stem usually have some clue to optic neuritis. Optic neuritis is an acute, sometimes painful, reduction or loss of vision in one eye and is a relatively common presenting symptom of MS. Colour vision may be impaired• Also depression is common <p>Pattern is usually: symptoms evolve over days, plateau, then resolves over days/weeks</p> <p>Diagnosis:</p> <ul style="list-style-type: none">• Mostly a clinical diagnosis• MRI (definitive diagnostic test): demyelination and/or lesions disseminated in time and place• Oligoclonal bands in CSF <p>Treatment:</p> <ul style="list-style-type: none">• Acute: IV or oral methylprednisolone• Interferon-beta or glatiramer acetate (first line)
35.	<p>A 60 year old man presents to Emergency with dizziness. The onset was sudden and described as “the room spinning around”. He also is bumping into things on his right side. On examination, his blood pressure is 159/91 mmHg, heart rate is 72 bpm. He is positive for nystagmus and dysdiadochokinesia. CT brain confirms ischaemic stroke. Where is the SINGLE most likely location of his stroke?</p> <p>A. Temporal lobe B. Left parietal lobe C. Right parietal lobe D. Anterior circulation E. Posterior circulation</p> <p>Know that lesions to the posterior circulation would affect functions of the brainstem, cerebellum, and occipital lobe. This would be consistent with the vertigo, right hemianopia, nystagmus and ataxia seen in this patient.</p> <p>Stroke in the posterior circulation</p> <p>Presentation:</p> <ul style="list-style-type: none">• Dizziness/vertigo, right hemianopia, nystagmus, ataxia, dysdiadochokinesia• Usually sudden onset with possible further progression that takes place over hours• May have underlying ischaemic heart disease, hypertension, carotid bruits, atrial fibrillation <p>Diagnosis:</p> <ul style="list-style-type: none">• Non-contrast CT brain - initial investigation• MRI brain - more sensitivity <p>Treatment:</p> <ul style="list-style-type: none">• Ischaemic stroke - thrombolysis (alteplase) → aspirin



	<ul style="list-style-type: none">• Maintain oxygen saturation, glucose control, blood pressure control• Maintain nutrition and hydration• Early mobilization
36.	<p>A 34 year old man is hit by a car. He loses consciousness but is found to be fine by the paramedics. When awaiting doctors review in the Emergency Department he suddenly becomes unconscious. What is the SINGLE most likely diagnosis?</p> <p>A. Subarachnoid haemorrhage B. Subdural haematoma C. Intracerebral haemorrhage D. Extradural (epidural) haematoma E. Whiplash</p> <p>This patient has lucid intervals. It is important to note that acute subdural haematoma also has lucid intervals. And thus when a patient presents with lucid intervals it can be both an extradural haematoma or an acute subdural haematoma. In general, for extradural haematoma the trauma is usually trivial and patient goes back to doing what he was doing before before falling unconscious again. Whereas acute subdural haematoma is usually a sicker patient who barely awakes during the lucid intervals. But again in clinical practice we do not lie on clinical features to differentiate epidural haematoma from acute subdural haematoma because both of them will get a CT scan</p> <p>Also note the difference between acute subdural haematoma and chronic subdural haematoma. In chronic subdural haematoma, it is usually an elderly, on anticoag or an alcoholic. Symptoms for chronic subdural haematoma are slow onset compared to epidural haematoma.</p> <p>As this question did not specify whether subdural haematoma is acute or chronic in nature, it would be more correct to choose extradural (epidural) haematoma as the answer.</p> <p>Extradural (epidural) haematoma</p> <p>Often associated with skull fracture and middle meningeal artery injury. Involves arterial blood.</p> <p>Features</p> <ul style="list-style-type: none">• Features of raised intracranial pressure• Patients may exhibit a lucid interval (note the lucid intervals as it is very commonly seen in PLAB) <p>Management</p> <p>Surgical procedure: burr hole over pterion (to ensure that further haemorrhage escapes instead of expanding the clot further) followed by craniotomy and evacuation of the haematoma.</p>



37.	<p>A 58 year old man has visual hallucinations of animals walking around his room. He is amused by them but is conscious that they are not real. He is noted to have fluctuating levels of awareness and attention and a decline in problem solving ability. Signs of mild parkinsonism are also seen. What is the SINGLE most likely diagnosis?</p> <p>A. Frontotemporal dementia B. Lewy body dementia C. Delirium tremens D. Alzheimer's disease E. Huntington's disease</p> <p>The most important features of Lewy body dementia that differentiate it from the other forms of dementia is the:</p> <ul style="list-style-type: none">• Visual hallucinations• Fluctuating course with lucid intervals• Signs of mild Parkinsonism <p>Typical presentation of lewy body dementia</p> <ul style="list-style-type: none">• Dementia is usually the presenting feature, with memory loss, decline in problem solving ability and spatial awareness difficulties.• Characteristically there are fluctuating levels of awareness and attention.• Signs of mild Parkinsonism (tremor, rigidity, poverty of facial expression, festinating gait). Falls frequently occur.• Visual hallucinations (animals or humans) and illusions. → <i>This is particularly important to differentiate lewy body from other types of dementia in the PLAB exam</i>• Sleep disorders including rapid eye movement sleep disorder, restless legs syndrome
38.	<p>A 54 year old chronic alcoholic man was admitted in the hospital for a fractured femur 2 days ago. He now has tremors, is profusely sweating, apprehensive and fearful. What is the SINGLE most appropriate treatment?</p> <p>A. Acamprosate B. Chlordiazepoxide C. Lorazepam D. Lofexidine E. Procyclidine</p> <p>Acute Alcohol Withdrawal</p> <p>Patients often present with anxiety, tremor, hyperactivity, sweating, nausea and retching, tachycardia, hypertension and mild pyrexia. Symptoms peak at at 12-30 hours and subside by 48 hours</p> <p>Medications used in alcoholics</p> <ul style="list-style-type: none">• Benzodiazepines for acute withdrawal (NHS commonly uses Chlordiazepoxide) Chlordiazepoxide is used as sedation• IV Pabrinex (Thiamine) (vitamin B1) is used to prevent Wernicke's encephalopathy which is a neuropsychiatric disorder caused by thiamine deficiency which is most commonly seen in alcoholics



	<ul style="list-style-type: none">• Disulfiram: promotes abstinence - alcohol intake causes severe reaction due to inhibition of acetaldehyde dehydrogenase. Patients should be aware that even small amounts of alcohol (e.g. In perfumes, foods, mouthwashes) can produce severe symptoms. <i>Example of when to use disulfiram in PLAB: 40 year old man wants medication to serve as a deterrent when he takes alcohol</i> <p>Acamprosate: reduces craving, improves abstinence in placebo controlled trials. <i>Example of when to use disulfiram in PLAB: 40 year old man wants some medication to help him reduce cravings</i></p>
39.	<p>A 26 year old woman who is a known epileptic wants to start a family. She takes sodium valproate for her epilepsy which has been well controlled and has been seizure free for the past year. She and her husband have been using condoms as contraception till present. She attends clinic seeking advice regarding her antiepileptic medication as she would like to get pregnant. What is the SINGLE most appropriate advice to give?</p> <p>A. Add ferrous sulphate B. Change sodium valproate to carbamazepine C. Advise to stop antiepileptic medication and start folic acid D. Reduce dose of sodium valproate E. No change in medication</p> <p>Change to carbamazepine is the best option given the options provided. If there was an option that said, change to carbamazepine and add folic acid 5mg, that would be an even better answer.</p> <p>One would not stop antiepileptic medication especially if the patient has only been seizure free for one year. The patient needs to be seizure free for more than 2 years before it would be considered reasonable to stop antiepileptic medication prior to pregnancy.</p> <p>Epilepsy and pregnancy</p> <p>Pre-pregnancy</p> <p>If a woman is taking antiepileptic drugs and planning a pregnancy, the general advice to give to her is about the increased risks of fetal malformations, neurodevelopmental delay, and possible increased seizure frequency in pregnancy.</p> <p>Since there is no agreement as to which antiepileptic drug is most or least teratogenic, the antiepileptic drug that stops seizures in a given patient is the one that should be used. However, there is one exception to the rule, SODIUM VALPROATE! The risk of teratogenicity with Valproate is greater than risk of teratogenicity with other antiepileptic drugs. Hence, sodium valproate should always be changed to another antiepileptic drug prior to pregnancy. Currently, carbamazepine and lamotrigine has good safety profiles but again there is no consensus as to which should be used.</p> <p>The Medicines and Healthcare products Regulatory Agency (MHRA) issued a special reminder on the risk of neurodevelopmental delay in children following maternal use of sodium</p>



	<p>valproate, and advises that this drug should not be used in women of childbearing potential unless there is no effective alternative.</p> <p>High dose (5mg) folic acid is recommended for at least 1 month preconceptually and throughout the first trimester.</p> <p>In established pregnancy</p> <p>In established pregnancy, changes to alternate antiepileptic drug therapy should NOT be undertaken solely to reduce teratogenic risk for 2 reasons :</p> <ol style="list-style-type: none">1. Changing AEDs may precipitate seizures2. Overlapping AEDs during the change exposes the fetus to effects of an additional antiepileptic drugs <p>Once an unplanned pregnancy is discovered it is usually too late for changes to be made to the epilepsy treatment regimen. The risk of harm to the mother and fetus from convulsive seizures outweighs the risk of continued therapy</p>
40.	<p>A 52 year old lady has weak limbs when examined. She was found to have burn marks on finger tips. Her hands looked wasted and with diminished reflexes. She also has weak spastic legs and dissociated sensory loss. What is the SINGLE most likely diagnosis?</p> <p>A. Multiple sclerosis B. Syringomyelia C. Motor neuron disease D. Guillain-barre E. Friedreich's ataxia</p> <p>If you were to see burn marks on finger tips in any given question, think of a loss of sensation of temperature and pain in the hands. This is commonly seen in syringomyelia and syringobulbia.</p> <p>The wasted and weak hands with diminished reflexes and weak spastic legs with dissociated sensory loss are features suggestive of syringomyelia.</p> <p>Syringomyelia and Syringobulbia</p> <p>Syringomyelia is a rare condition in which there is fluid-filled tubular cyst (syrinx) within the central, usually cervical, spinal cord. The syrinx can elongate, enlarge and expand into the grey and white matter and, as it does so, it compresses the nervous tissue of the corticospinal and spinothalamic tracts and the anterior horn cells. This leads to various neurological symptoms and signs, including pain, paralysis, stiffness and weakness in the back, shoulders and extremities. Syringomyelia may also cause loss of extreme temperature sensation, particularly in the hands, and a cape-like loss of pain and temperature sensation along the back and arms.</p>



	<p>Syringobulbia occurs when the syrinx extends into the brainstem. This may affect one or more cranial nerves, resulting in facial palsies. Sensory and motor nerve pathways may be affected by interruption and/or compression of nerves.</p> <p><i>Note: Progression of symptoms and deterioration occur over many years for syringomyelia and syringobulbia</i></p> <p>Symptoms of both Syringomyelia and Syringobulbia</p> <ul style="list-style-type: none">• Damage to the spinal cord often leads to progressive weakness in the arms and legs, stiffness in the back, shoulders, arms, or legs, and chronic, severe pain. These can be present at presentation.• Other symptoms may include headaches, a loss of the ability to feel extremes of hot or cold (especially in the hands), and loss of bladder and other functions.• Pain and temperature sensation are lost due to spinothalamic tract damage.• Classically, the sensation loss is experienced in a shawl-like distribution over the arms, shoulders and upper body.• Dysaesthesia (pain experienced when the skin is touched) is common.• Light touch, vibration and position senses in the feet are affected as the syrinx enlarges into the dorsal columns.• Muscle wasting and weakness begins in the hands and then affects the forearms and shoulders.• Tendon reflexes are lost.
41.	<p>A 75 year old woman has been admitted from a nursing home with sudden onset of right hemiplegia and homonymous hemianopia. She is dysphasic. She remains conscious throughout and on examination, brisk reflexes and several beats of clonus are noted. What is the SINGLE most likely artery to be occluded?</p> <p>A. Right middle cerebral artery B. Left middle cerebral artery C. Right posterior cerebral artery D. Right posterior cerebral artery E. Left basilar artery</p> <p>This patient has an upper motor neuron lesion as signified by a pathological extensor plantar response and hyperreflexia.</p> <p>Every option that was give could cause the symptoms of stroke. But it is important to know which is the most common artery to be occluded in stroke. This would be the middle cerebral arteries. Given that the symptoms are on the right, the occluded artery would be on the left (Remember, stroke causes contralateral hemiplegia)</p> <p>Cerebral hemisphere infarcts presentation</p> <ul style="list-style-type: none">• Sudden onset or a stepwise progression of symptoms and signs over hours (sometimes even days) is typical



	<ul style="list-style-type: none">• Cerebral hemisphere infarcts (50%) may cause:<ul style="list-style-type: none">○ Contralateral hemiplegia which is initially flaccid (floppy limb, falls like a dead weight when lifted) and then becomes spastic○ Contralateral sensory loss○ Homonymous hemianopia○ Dysphasia <p><i>Note: Middle cerebral artery (MCA) is the most common cerebral occlusion site.</i></p>
42.	<p>A 32 year old female presents with a history of recurring headaches. They are usually unilateral, last for 24–48 hours, have a pulsatile quality, and are associated with nausea and photophobia. The patient describes the headaches as intense, usually requiring her to limit her activities. She has tried several over-the-counter medications with no relief. Which of the following is the SINGLE most appropriate choice for first-line management of her condition?</p> <p>A. Paracetamol oral B. Prednisone oral C. Sumatriptan oral D. Sumatriptan nasal E. Oxycodone oral</p> <p>This is a classic presentation of acute migraine. First line therapy are triptans according to NICE guidelines. Note that if the patient was 12-17 years, then it is recommended that they start with a nasal triptan before oral. Be aware that opioids are never given during an acute onset of migraine.</p> <p>Migraine Presentation:</p> <ul style="list-style-type: none">• History of unilateral, throbbing headache• Associated with nausea/vomiting; photophobia• Associated with aura/triggers• May be described as: “need to limit activities” or “prefer to stay in a dark room” <p>Diagnosis:</p> <ul style="list-style-type: none">• Clinical diagnosis• May require CT / MRI head to rule out other pathology <p>Treatment:</p> <ul style="list-style-type: none">• Sumatriptan - first line• Monotherapy: triptan, NSAID, aspirin, paracetamol• Combination therapy: triptan + NSAID; triptan + paracetamol• Transcutaneous stimulation of the vagus nerve• Avoid triggers



43.	<p>79 year old stumbled at home and sustained a minor head injury 2 weeks ago. He did not become unconscious and was well after the fall. His son has brought him to clinic because he has become increasingly confused, drowsy and unsteady over the past few days. He has a GCS of 13. His past medical history includes atrial fibrillation in which he takes warfarin for. What is the SINGLE most likely diagnosis?</p> <p>A. Alzheimers B. Delirium C. Chronic Subdural haemorrhage D. Vascular dementia E. Pick's dementia</p> <p>An elderly man with a history of fall and on anticoagulation with progressive confusion over the last couple of days points towards the diagnosis of chronic subdural haemorrhage.</p> <p>Chronic subdural haematoma occurs in the very old or in severe alcoholics. A shrunken brain is rattled around the head by minor trauma, tearing venous sinuses. Over several days or weeks, mental function deteriorates as haematoma forms. CT scan is diagnostic, and surgical evacuation provides dramatic cure.</p> <p>Remember in PLAB, Chronic subdural haematoma usually presents as an elderly, on anticoag or an alcoholic who may have history of fall. Slow onset of symptoms compared to epidural haematoma.</p>
44.	<p>A 45 year old man presents to the emergency department with acute back pain radiating down to his legs, urinary retention and incontinence. On examination, perineal sensory loss is noted. What is the SINGLE most appropriate investigation?</p> <p>A. MRI B. CT spine C. Plain X-rays D. Dual energy X-ray absorptiometry E. PET CT</p> <p>This is a classic example of cauda equina syndrome. It is a serious neurologic condition in which damage to the cauda equina causes loss of function of the nerve roots of the spinal canal below the termination (conus medullaris) of the spinal cord. Any lesion which compresses or disturbs the function of the cauda equina may disable the nerves although the most common is a central disc prolapse.</p> <p>Investigation of choice is an MRI.</p>



45.	<p>A 33 year old woman previously in good health presents with sudden onset of severe occipital headache and vomiting a few hours ago. Her only physical sign on examination is a stiff neck. What is the SINGLE most likely diagnosis?</p> <p>A. Subarachnoid haemorrhage B. Subdural haematoma C. Cerebellar haemorrhage D. Migraine E. Cerebral embolism</p> <p>Sudden onset severe occipital headache and vomiting with stiffness makes the likely diagnosis to be subarachnoid haemorrhage. The neck stiffness is due to meningeal irritation. Usually patients would be complaining of photophobia as well. Patients often describe the headaches as “the worst headache of my life”.</p>
46.	<p>A 39 year old chronic alcoholic stopped drinking alcohol for the last 2 days. He is now anxious, has tremors and is sweating profusely. His heart rate is 103 beats/minute. What is the SINGLE most appropriate treatment?</p> <p>A. Naloxone B. Benzodiazepines C. Acamprosate D. Disulfiram E. Haloperidol</p> <p>Acute Alcohol Withdrawal</p> <p>Patients often present with anxiety, tremor, hyperactivity, sweating, nausea and retching, tachycardia, hypertension and mild pyrexia. Symptoms peak at at 12-30 hours and subside by 48 hours</p> <p>Medications used in alcoholics</p> <ul style="list-style-type: none">• Benzodiazepines for acute withdrawal (NHS commonly uses Chlordiazepoxide) Chlordiazepoxide is used as sedation• IV Pabrinex (Thiamine) (vitamin B1) is used to prevent Wernicke's encephalopathy which is a neuropsychiatric disorder caused by thiamine deficiency which is most commonly seen in alcoholics• Disulfiram: promotes abstinence - alcohol intake causes severe reaction due to inhibition of acetaldehyde dehydrogenase. Patients should be aware that even small amounts of alcohol (e.g. In perfumes, foods, mouthwashes) can produce severe symptoms. <i>Example of when to use disulfiram in PLAB: 40 year old man wants medication to serve as a deterrent when he takes alcohol</i> <p>Acamprosate: reduces craving, improves abstinence in placebo controlled trials. <i>Example of when to use disulfiram in PLAB: 40 year old man wants some medication to help him reduce cravings</i></p>



47. A 45 year old chronic alcoholic presents to A&E with an ataxic gait, hallucinations and is confused. He is given chlordiazepoxide. What is the SINGLE most appropriate medication to be given with chlordiazepoxide?

- A. Acamprosate
- B. Thiamine**
- C. Diazepam
- D. Disulfiram
- E. Haloperidol

This man is suffering from Wernicke's encephalopathy.

Wernicke's encephalopathy is a neuropsychiatric disorder caused by thiamine deficiency which is most commonly seen in alcoholics. A classic triad of confusion, ophthalmoplegia and ataxia may occur.

Treatment is with urgent replacement of thiamine

If not treated Korsakoff's syndrome may develop as well. This is termed Wernicke-Korsakoff syndrome and is characterised by the addition of antero- and retrograde amnesia and confabulation in addition to the above classic triad.

Wernicke's Encephalopathy	Wernicke's - Korsakoff syndrome (or just Korsakoff syndrome)
Triad of: <ul style="list-style-type: none">1. Confusion2. Ataxia3. Ophthalmoplegia	Addition of: <ul style="list-style-type: none">4. Amnesia5. Confabulation

48. A 50 year old man presents to the emergency department with acute back pain radiating down to his right leg. The pain is relieved when lying down and exacerbated by long walks and prolonged sitting. What is the SINGLE most appropriate investigation?

- A. MRI**
- B. CT spine
- C. X-ray spine
- D. Dual energy X-ray absorptiometry
- E. Serum paraprotein electrophoresis

Back pain radiating down to legs which is relieved when lying down and exacerbated by long walk and prolonged sitting are characteristic of lumbosacral disc herniation.

Lumbosacral disc herniation
Presentation



	<p>If there is nerve entrapment in the lumbosacral spine, this leads to symptoms of sciatica which include:</p> <ul style="list-style-type: none">• Unilateral leg pain which radiates below the knee to the foot/toes• The leg pain being more severe than the back pain• Numbness, paraesthesia, weakness and/or loss of tendon reflexes, which may be present and are found in the same distribution and only in one nerve root distribution• A positive straight leg raising test (there is greater leg pain and/or more nerve compression symptoms on raising the leg).• Pain which is usually relieved by lying down and exacerbated by long walks and prolonged sitting <p>Large herniations can compress the cauda equina, leading to symptoms/signs of saddle anaesthesia, urinary retention and incontinence</p> <p>Investigation</p> <p>No investigation may be needed if the symptoms settle within six weeks. MRI still remains the most sensitive in showing disc herniations. Plain X-rays may be useful, as they can show misalignments, instabilities and congenital anomalies well but the investigation of choice for a disc prolapse is an MRI.</p>
49.	<p>A 44 year old man presents to Emergency after falling from a third floor building. His Glasgow Coma Scale is 4/15. He is intubated and ventilated on arrival. Neurological examination reveals unequal pupils. CT head and neck reveals midline shift and a left-sided convex enhancing area. What is the SINGLE most appropriate next step in management?</p> <p>A. Intravenous mannitol to reduce intracranial pressure B. Intravenous thiopentone to reduce intracranial pressure C. Conservative management with 30 degree head-up D. Urgent craniotomy E. Endovascular coiling under neuroradiological guidance</p> <p>This is a diagnosis of extradural haemorrhage. While this is a frequent neurology topic for PLAB 1, the presentation here has left out the usual clue: "lucid interval". However, the stem provides another clue to the diagnosis: the CT findings which are indicative of an extradural haemorrhage. Take note of the revised NICE guidelines regarding the management of traumatic brain injuries. In this case, this patient not only has raised intracranial pressure but he is also showing signs of neurological deficit (unequal pupils) in addition to the low Glasgow Score. Therefore, he is not suitable for conservative management and requires immediate craniotomy for evacuation of the haematoma.</p> <p>Extradural haemorrhage</p> <p>Presentation:</p> <ul style="list-style-type: none">• Trauma to the head• Followed by immediate loss of consciousness, +/- lucid interval with decline in mental function



	<p>Diagnosis:</p> <ul style="list-style-type: none">• CT head and neck <p>Treatment:</p> <ul style="list-style-type: none">• ABCDE protocol• CT head and neck• Immediate craniotomy• If GCS > 8 + other CT criteria met, may attempt for conservative management → observation and serial CT brain
50.	<p>A 64 year old housewife, known case of uncontrolled hypertension, presents to emergency with dysphagia, right sided hemi-paresis and ataxia. There is also loss of sensation on the left side of the face. Which of the following is the SINGLE most likely area in the brain to be affected?</p> <p>A. Frontal lobe B. Parietal lobe C. Temporal lobe D. Lateral medulla E. Occipital lobe</p> <p>For PLAB 1, stroke questions come in various forms ranging from the anatomical locations of the lesion, investigations and management. Pay special attention to the anatomy of the lesions especially the vascular distribution and the functions of the different parts of the brain. In this case stem, the vascular system affected is the vertebrobasilar circulation. Therefore, symptoms will arise from one or all of the following areas: cerebellum, brainstem, and occipital lobes. From the options above, D and E are possibilities; however the question asks the single most likely answer, so it will be D. Option E will usually have some clue to a visual disturbance in the case stem, which this question does not.</p> <p>Presentation: This is an infarction of the brainstem and is part of the lateral medullary syndrome. It will have some or all of the following depending on the severity of the vascular occlusion</p> <ul style="list-style-type: none">- Vertigo, vomiting, dysphagia- Nystagmus- Ipsilateral ataxia, soft palate paralysis- Ipsilateral sensory loss in the face, contralateral sensory loss in the trunk and limbs <p>Stroke general features:</p> <ul style="list-style-type: none">- Usually sudden onset with possible further progression that takes place over hours- May have underlying ischaemic heart disease, carotid bruits, atrial fibrillation <p>Diagnosis:</p> <ul style="list-style-type: none">- CT brain with no contrast to rule out whether stroke is ischaemic or haemorrhagic (initial investigation)- Diffusion-weighted MRI brain provides more sensitivity in acute setting



	<p>Treatment:</p> <ul style="list-style-type: none">- ABC protocol- Blood glucose – keep between 4-11mmol/L & IV fluid hydration- If ischaemic stroke – give Aspirin 300mg PO- If < 3 hours and ischaemic stroke, thrombolysis (alteplase) (Nice Guidelines say give within 4.5 hours)
51.	<p>A 26 year old man was found on the street to be unsteady and drunk by police. On admission to Emergency, he had a sudden onset of headache with severe intensity. The headache is localized to his occipital area and is continuous. On examination, his GCS is 15/15, afebrile and no focal neurological signs. What is the SINGLE most likely diagnosis</p> <p>A. Subdural haemorrhage B. Subarachnoid haemorrhage C. Epidural haemorrhage D. Cluster headache E. Viral meningitis</p> <p>Note for the exam, the keywords for subarachnoid haemorrhage (SAH): “worst headache of my life”, “headache of severe intensity”, “thunderclap headache”, “sudden onset”, “occipital”. The other main clue in this stem is the patient was found drunk. Excess alcohol consumption is one main risk factor leading to SAH.</p> <p>Subarachnoid hemorrhage</p> <ul style="list-style-type: none">• Usually the result of bleeding from a berry aneurysm in the Circle of Willis <p>Presentation</p> <ul style="list-style-type: none">• Sudden and severe occipital headache described as the “worst headache of my life” or “thunderclap headache”• Neck stiffness or pain• Vomiting, collapse, seizures <p>Associations</p> <ul style="list-style-type: none">• Hypertension• Polycystic kidney disease → Berry aneurysms are found in 10% of patients with autosomal dominant adult polycystic kidney disease• Ehlers Danlos syndrome <p>Diagnosis</p> <ul style="list-style-type: none">• CT brain• Lumbar puncture<ul style="list-style-type: none">○ Only done if CT is inconclusive + no contraindications○ The CSF of a lumbar puncture → bloody then xanthochromic (bilirubin) <p>Treatments for SAH are rarely or almost never asked in at this level. Save your brain space and memorize other important information.</p>



52.	<p>A 62 year old man has recently had a flu-like illness. He woke up with difficult and unclear articulation of speech. Movement of his eyelids and lips are weak on the right side. What is the SINGLE most likely anatomical site affected?</p> <p>A. Facial nerve B. Hypoglossal nerve C. Oculomotor nerve D. Trigeminal nerve E. Glossopharyngeal nerve</p> <p>Viral infection may cause facial nerve palsy.</p> <p>Facial Nerve Palsy</p> <p>Presentation Weakness of the muscles of facial expression and eye closure. The face sags and is drawn across to the opposite side on smiling. Voluntary eye closure may not be possible and can produce damage to the conjunctiva and cornea. In severe cases, dysarthria and difficulty with eating may occur.</p>
53.	<p>A 78 year old male presents with a history of urinary incontinence and change in behavior. On examination, he has a waddling gait. What is the SINGLE most likely diagnosis?</p> <p>A. Subdural hemorrhage B. Brain tumor C. Parkinson's disease D. Psychotic depression E. Normal pressure hydrocephalus</p> <p>Normal pressure hydrocephalus</p> <p>Normal pressure hydrocephalus will present with prominent gait abnormalities early in the course of the disease that usually precede the onset of cognitive impairment. There will also be associated urinary incontinence.</p> <p>Normal pressure hydrocephalus is a reversible cause of dementia seen in elderly patients. It is thought to be secondary to reduced CSF absorption at the arachnoid villi.</p> <p>Has a classical triad of:</p> <ul style="list-style-type: none">• Urinary incontinence• Dementia• Gait abnormality (may be similar to Parkinson's disease) <p><i>“the wet, wobbly and wacky grandpa”</i></p>



	<p>This classical symptoms are known as Hakim's triad. The incontinence does not follow the pattern of spinal cord lesions (painless retention and overflow); rather, it is the apparently normal passage of urine in response to a full bladder, but without the patient being aware or particularly concerned by it. It is best thought of as part of the cognitive decline rather than a separate entity. In elderly patients it may be confused with urgency or gait problems preventing them getting to the toilet in time.</p>
54.	<p>A 49 year old man first presented with increasing difficulty in swallowing. Several months later he developed weakness in his right foot. Now he can no longer feed himself, he chokes on food and has become confined to a wheelchair. What is SINGLE most likely diagnosis?</p> <p>A. Cerebral tumor B. Myasthenia gravis C. Lambert-Eaton syndrome D. Motor neuron disease E. Cerebrovascular disease</p> <p>Motor neuron disease (MND). This picture is of amyotrophic lateral sclerosis with bulbar onset.</p> <p>In MND, motor nerves become damaged and eventually stop working. Therefore, the muscles that the damaged nerves supply gradually lose their strength. There are various subtypes of MND. In each type, symptoms tend to start in different ways. However, as the disease progresses, the symptoms of each type of MND tend to overlap. This means that symptoms in the later stages of each type of MND become similar. The main types of MND are:</p> <p>Amyotrophic lateral sclerosis (ALS). This is the classical MND and the most common type. About 8 in 10 people with MND have this type. Symptoms tend to start in the hands and feet. The muscles tend to become stiff as well as weak at first.</p> <p>Progressive bulbar palsy (PBP). About 2 in 10 people with MND have this type. The muscles first affected are those used for talking, chewing and swallowing (the bulbar muscles).</p> <p>Progressive muscular atrophy (PMA). This is an uncommon form of MND. The small muscles of the hands and feet are usually first affected but the muscles are not stiff.</p> <p>Primary lateral sclerosis (PLS). This is a rare type of MND. It mainly causes weakness in the leg muscles. Some people with this type may also develop clumsiness in the hands or develop speech problems.</p> <p><i>The subtypes for PLAB are not so important as they are unlikely to be asked. The only subtype that has potential in being asked is Amyotrophic lateral sclerosis (ALS)</i></p> <p>Amyotrophic lateral sclerosis Presentation:</p> <ul style="list-style-type: none">• Progressive weakness of bulbar, limb, thoracic and abdominal muscles• Oculomotor, sphincter, cognitive functions are usually spared



	<ul style="list-style-type: none">• Late stages - swallowing difficulty and hoarseness <p>Diagnosis:</p> <ul style="list-style-type: none">• Clinical diagnosis via diagnostic criteria by EFNS guidelines <p>Treatment:</p> <ul style="list-style-type: none">• Multidisciplinary care• Neuroprotective medication: riluzole• Medications to treat respiratory symptoms, drooling, insomnia, fatigue, and psychological symptoms• Genetic testing and counseling for family
55.	<p>A 66 year old man, known case of uncontrolled hypertension, presents to clinic with confusion. He has a past history of transient ischaemic attack where he temporarily suffered from left arm paralysis. Throughout the year, his wife has noticed a decline in his memory, along with clumsy gait which has made him prone to falls, as well as progressive urinary incontinence. On examination, his BMI is 31 kg/m² and has irritable mood. MRI brain showed multiple subcortical lacunar old infarcts. What is the SINGLE most likely diagnosis?</p> <p>A. Vascular dementia B. Lewy body dementia C. Fronto-temporal (Pick's) dementia D. Alzheimer's disease E. Normal pressure hydrocephalus</p> <p>PLAB 1 key clues: >50 years with history of smoking, hypertension, and past stroke or transient ischaemic attack. There would be "step-wise" deterioration of symptoms. Some case stems would have the patient undergo a stroke-like event, deteriorate, then recover partially. There would be some overlap with Alzheimer's in terms of symptoms but look out for the history of ischaemia.</p> <p>Vascular dementia</p> <p>Presentation:</p> <ul style="list-style-type: none">- "Step-wise" deterioration, may have a partial recovery period before further decline- +/- Focal neurological signs- Associated with hypertension, previous stroke / transient ischaemic attack (TIA) <p>Diagnosis:</p> <ul style="list-style-type: none">- MRI brain <p>Treatment:</p> <ul style="list-style-type: none">- Multi-disciplinary approach- Follow according to post-stroke / post-TIA management- Behavioural changes: consider trazodone or lorazepam



56. A 26 year old woman presents to her GP with a headache, photophobia and a fever. On examination, a generalized rash that does not blanch on pressure was observed. What is the SINGLE most appropriate initial management?

A. IM benzylpenicillin

- B. Isolate the patient
- C. Blood culture
- D. IV Gentamicin
- E. IV Ceftriaxone

She has signs of meningitis but she presented to her GP thus benzylpenicillin IM (or IV) would be the correct answer. If you suspect meningitis and patient is not yet in the hospital give IM benzylpenicillin and send patient to the hospital urgently.

In a hospital setting, give intravenous third generation cephalosporin antibiotics (ceftriaxone or cefotaxime)

If this exact same question was given, but there was a diagnosis of Listeria, then IV amoxicillin and gentamicin would be the correct answer

If this exact same question was given, but she is penicillin or cephalosporin allergic, then chloramphenicol would be the answer. If the patient has a history of immediate hypersensitivity reaction to penicillin or to cephalosporins the BNF recommends using chloramphenicol.

Investigations

Generally, treatment for meningitis should be started before doing any investigations due to the seriousness of the disease.

Rash

If patient has got a rash, then perform blood culture as the diagnosis is most likely meningococcal septicaemia. The causative organism is *Neisseria meningitidis*.

If there is no rash then a lumbar puncture would be a better answer, but this can only be done if there are no signs of raised intracranial pressure

Management of contacts

Prophylaxis (oral ciprofloxacin or rifampicin) needs to be offered to household and close contacts of patients affected with meningococcal meningitis

Summary

Pre-hospital setting + Suspect meningococcal disease → IM benzylpenicillin

Hospital setting + Suspect meningococcal disease → IV cefotaxime

Meningitis caused by listeria → IV amoxicillin and gentamicin

Hypersensitivity reaction to penicillin or cephalosporins → chloramphenicol

Prophylaxis to close contact (meningococcal meningitis) → oral ciprofloxacin or rifampicin



57. A 44 year old woman presents with a severe throbbing unilateral right sided headache and photophobia 20 minutes after an episode of tingling and numbness of her left hand. What is the SINGLE most likely diagnosis?

- A. Transient Ischemic Attack
- B. Migraine**
- C. Meningitis
- D. Stroke
- E. Subarachnoid haemorrhage

This is a typical case stem for migraine in PLAB 1. The patient will present with or without aura (sensory or motor) followed by the headache itself. THIS IS EXTREMELY IMPORTANT. The key to differentiating between a migraine or a headache of a more serious origin (e.g. subarachnoid hemorrhage) is the onset of a unilateral, throbbing headache AFTER an aura.

Types of aura include, but are not limited to:

Visual disturbances can include:

- blind spots in the field of eyesight
- coloured spots
- sparkles or stars
- flashing lights before the eyes
- tunnel vision
- zig zag lines
- temporary blindness.

Other aura symptoms can include:

- numbness or tingling
- pins and needles in the arms and legs
- weakness on one side of the body
- dizziness
- a feeling of spinning (vertigo).

More information about migraine:

Migraine

Presentation:

Young to middle aged female or male (for PLAB 1)

Throbbing headache, localized to one side preceded by aura

+/- Nausea and vomiting

+/- Photophobia

Diagnosis:

Clinical diagnosis

MRI – can check for physiological changes in the brain during a migraine, but not necessary (doesn't change management)

Acute Treatment:



- Combination therapy with an oral triptan and an NSAID, or an oral triptan and paracetamol.
- If monotherapy is preferred, offer an oral triptan, or NSAID, or aspirin, or paracetamol.

Prevention:

- Topiramate or propranolol as first line for prevention
- Preventive treatment should be offered in addition to acute treatment.
- If both topiramate and propranolol are ineffective or are unsuitable, offer gabapentin or acupuncture

58. A 50 year old man complains of being pursued by the police for a crime he denies committing however on further investigation, this was found to be untrue. He has poor concentration and impaired short-term memory. He admits to drinking large amounts of alcohol for the last 20 years. He is able to carry on a coherent conversation, but moments later he is unable to recall that the conversation took place. What is the SINGLE most likely diagnosis?

- A. Cotard syndrome
- B. Alcohol withdrawal
- C. Wernicke's encephalopathy
- D. Schizophrenia
- E. Korsakoff psychosis**

Korsakoff syndrome

This is termed Wernicke-Korsakoff syndrome and is characterised by the addition of antero- and retrograde amnesia and confabulation in addition to the classic triad of confusion, ataxia and ophthalmoplegia found in Wernicke's encephalopathy.

Those with Korsakoff syndrome may "confabulate," or make up, information they can not remember. They are not "lying" but may actually believe their invented explanations. They create events to fill the gaps in day-to-day memory. For example, a person who has been in hospital for several weeks may talk convincingly about having just visited their aunt earlier that day. This is more common in the early stages of the condition..

Individuals may seem able to carry on a coherent conversation, but moments later be unable to recall that the conversation took place or to whom they spoke. They can often answer questions promptly with inaccurate and sometimes bizarre answers.

Wernicke's Encephalopathy	Wernicke's - Korsakoff syndrome (or just Korsakoff syndrome)
Triad of: 1. Confusion 2. Ataxia 3. Ophthalmoplegia	Addition of: 4. Amnesia 5. Confabulation



59. A 69 year old woman is brought to A&E by ambulance with no significant past medical history or allergies. She presents with speech disturbance and asymmetric facial and arm weakness. The symptoms began 3 hours ago. Brain imaging shows an ischaemic stroke. Which is the SINGLE most appropriate next course of action?

- A. Anticoagulation
- B. Administer alteplase**
- C. Administer streptokinase
- D. Start statins
- E. Review in 24 hours

The history and examination are convincing for a stroke. Before any treatment can happen we need to exclude a haemorrhagic stroke with the help of imaging. This was done in this question which showed an ischaemic stroke. The next step is to start thrombolytics.

The other options are less likely to be the appropriate next course of action.

Anticoagulation → anticoagulants should not be started until brain imaging has excluded haemorrhage, and usually not until 14 days have passed from the onset of an ischaemic stroke”

Streptokinase → NHS prefers alteplase over streptokinase.

Statins → Statins need to be offered but this is not the most appropriate next course of action. There is no urgency in giving statins.

Review in 24 hours → Thrombolysis should only be given if it is administered within 4.5 hours of onset of stroke symptoms and haemorrhagic stroke has been excluded by imaging. So review in 24 hours is clearly a wrong option.

Stroke management

Summary of management of acute stroke:

- blood glucose, hydration, oxygen saturation and temperature should be maintained within normal limits
- aspirin 300mg orally or rectally should be given as soon as possible if a haemorrhagic stroke has been excluded
- Thrombolysis should only be given if it is administered within 4.5 hours of onset of stroke symptoms and haemorrhagic stroke has been excluded by imaging (Alteplase is currently recommended by NICE)

Post management stroke

- Aspirin 300 mg daily for 2 weeks is given immediately after an ischaemic stroke is confirmed by brain imaging.
- Clopidogrel 75 mg daily is then given long-term
- If clopidogrel is contraindicated or not tolerated, give a combination of modified-release dipyridamole and low dose aspirin.



- Ensure a statin has been offered.

60. A 46 year old chronic alcoholic man is brought to the emergency department in a drowsy state. He is responding vaguely to questions. He denies any alcohol intake today. He walks with an ataxic gait. Examination reveals nystagmus and hyperreflexia.

Haemoglobin 128 g/L
Mean cell volume (MCV) 99 fL

What is the SINGLE most likely cause for his cognitive impairment?

- A. B1 deficiency**
B. B6 deficiency
C. B12 deficiency
D. Folate deficiency
E. Liver disease

Although, folate deficiency is more common in people who regularly misuse alcohol this is not the answer in this stem. A haemoglobin of 128 g/L is barely enough to cause any symptoms of anaemia.

This man is suffering from Wernicke's encephalopathy.

Wernicke's encephalopathy is a neuropsychiatric disorder caused by thiamine deficiency which is most commonly seen in alcoholics. A classic triad of confusion, ophthalmoplegia and ataxia may occur.

Treatment is with urgent replacement of thiamine (vitamin B1)

If not treated Korsakoff's syndrome may develop as well. This is termed Wernicke-Korsakoff syndrome and is characterised by the addition of antero- and retrograde amnesia and confabulation in addition to the above classic triad.

Wernicke's Encephalopathy	Wernicke's - Korsakoff syndrome (or just Korsakoff syndrome)
Triad of: 1. Confusion 2. Ataxia 3. Ophthalmoplegia	Addition of: 4. Amnesia 5. Confabulation



61. A 43 year old woman presented with blurred vision and intermittent clumsiness for 3 months. Reflexes are brisk in her arm and optic disc is pale. What is the SINGLE most appropriate test to confirm diagnosis?

- A. CSF analysis
- B. CT
- C. MRI**
- D. EEG
- E. EMG

She has features suggestive of multiple sclerosis. Investigation of choice is an MRI scan.

Multiple Sclerosis

Presentation:

Variety of symptoms involving motor and sensory mainly of the brainstem and cerebellum. It may be easier to divide them into groups to remember.

- 1. Transverse myelitis:
 - Weakness, sensory symptoms
 - Urinary urgency and retention
 - Flexor spasms
 - Spastic quadriparesis or paraparesis
- 2. Brainstem:
 - Ataxia
 - Diplopia
 - Dysarthria
 - Facial numbness
 - Ophthalmoplegia
 - Gaze palsy
- 3. Cerebellum
 - Ataxia
 - Dysarthria
 - Nystagmus
- PLAB 1 stem usually have some clue to optic neuritis. Optic neuritis is an acute, sometimes painful, reduction or loss of vision in one eye and is a relatively common presenting symptom of MS. Colour vision may be impaired
- Also depression is common

Pattern is usually: symptoms evolve over days, plateau, then resolves over days/weeks

Diagnosis:

- Mostly a clinical diagnosis



	<ul style="list-style-type: none">• MRI (definitive diagnostic test): demyelination and/or lesions disseminated in time and place• Oligoclonal bands in CSF <p>Treatment:</p> <ul style="list-style-type: none">• Acute: IV or oral methylprednisolone• Interferon-beta or glatiramer acetate (first line)
62.	<p>A 33 year old man was working late in his office when he had a sudden onset of excruciating headache localized to his right side and associated with right eye pain. He has had similar episodes 2 months ago. On examination, his right eye is swollen and red with lacrimation. What is the SINGLE most likely diagnosis?</p> <p>A. Migraine with aura B. Temporal arteritis C. Conjunctivitis D. Cluster headache E. Tension headache</p> <p>For PLAB 1, know how to differentiate the different types of headaches (i.e. intracerebral haemorrhage, migraine, cluster headache, tension headache). Features of cluster headache in PLAB 1: there is usually a male undergoing some sort activity with a rapid onset of severe headache with eye involvement. The eye pain is usually periorbital. As the name implies, the frequency of these headaches occur in “clusters”. Look at the time frame in PLAB 1: there is usually a clue to having frequent past episodes with/without period of remission.</p> <p>Cluster headache</p> <p>Presentation:</p> <ul style="list-style-type: none">- Male (30-40 years)- Excruciating headache: unilateral orbital, supraorbital, temporal- Pain typically occurs once or twice a day, each episode lasting 15 mins - 2 hours- These headaches can go on and off for 7 days – 1 year- Triggers: stress, alcohol, exercise- Accompanied by redness, lacrimation, lid swelling, nasal stuffiness- Intense pain around one eye (recurrent attacks 'always' affect same side) <p>Diagnosis:</p> <ul style="list-style-type: none">- Mainly clinical diagnosis <p>Treatment:</p> <ul style="list-style-type: none">- Acute: sumatriptan subcutaneous + 100% oxygen +/- lidocaine intranasally- Prevention: prednisolone, verapamil



63. A 31 year old woman, no known case of medical illnesses, presents to clinic with numbness and tingling of her hands and fingers followed by a severe throbbing headache localized to her left side. At home she tried to relieve her headache with cold packs, paracetamol, and ibuprofen but there was no relief. She has had similar episodes in the past. Currently, she is nauseated. On examination, she required the lights to be dimmed. What is the SINGLE most appropriate next step pharmacological management?

- A. Parfalgan IV
- B. Ketoprofen oral
- C. Sumatriptan oral**
- D. Gabapentin oral
- E. Topiramate oral

This is a typical case stem for migraine in PLAB 1. Patient will present with or without aura (sensory or motor) followed by the headache itself. To differentiate from more serious headaches (i.e. intracranial haemorrhages) in PLAB 1, the clues usually would be “throbbing headache”, unilateral, and/or photophobia. Note that topiramate is teratogenic/cause embryopathy and a preventative measure for migraine. Also, pay attention to what PLAB 1 asks: If the woman is on COCP and has migraine with aura, advise cessation of COCP as it increases risk of ischemic stroke.

Migraine

Presentation:

- Young to middle-aged female or male (for PLAB 1)
- Throbbing headache, localized to one side preceded by aura
- +/- Nausea and vomiting
- +/- Photophobia

Diagnosis:

- Clinical diagnosis
- fMRI – can check for physiological changes in the brain during a migraine, but not necessary (doesn’t change management)

Acute Treatment:

NICE CKS recommends:

Combination therapy with an oral triptan and an NSAID, or an oral triptan and paracetamol. If monotherapy is preferred, offer an oral triptan, or NSAID, or aspirin, or paracetamol.

Prevention:

NICE CKS recommends: Topiramate or propranolol as first-line for prevention preventive treatment should be offered in addition to acute treatment.

If both topiramate and propranolol are ineffective or are unsuitable, offer gabapentin or acupuncture



64.	<p>A 68 year old lady complains of falls to the ground without any warning. She maintains consciousness throughout and remembers the event. There is no confusion after the fall. What is the SINGLE most likely diagnosis?</p> <p>A. Stokes Adams attack B. Hypoglycaemia C. Vasovagal syncope D. Drop attacks E. Epilepsy</p> <p>Drop attacks are sudden spontaneous falls while standing or walking, with complete recovery in seconds or minutes. There is usually no loss of consciousness, and the event is remembered.</p> <p>The remaining options given usually have a prodrome or identifiable symptoms prior to the episodes like dizziness or pallor. Drop attacks do not have these.</p> <p>Drop attacks Drop attacks refers to unexplained falls with no prodrome, no loss of consciousness, and rapid recovery. The proportion of falls due to 'drop attack' increases with age.</p> <p>Causes</p> <ul style="list-style-type: none">• Vertebrobasilar insufficiency• Weak legs (eg cauda equina syndrome) <p>Note that the usual cause is sudden weakness of the legs that causes the patient, usually an older woman, to fall to the ground. There is no warning, no loss of consciousness and no confusion afterwards. The condition is usually benign, resolving spontaneously after a number of attacks.</p>
65.	<p>A 65 year old man has been recently diagnosed with atrial fibrillation. He has suffered from a transient ischaemic attack 3 years ago. His medical history is significant for diabetes mellitus type 2. What is the SINGLE best scoring method to assess the need for anticoagulation?</p> <p>A. ABCD2 B. CHA2DS2-VASc C. Well's Score D. CURB-65 E. NYHA Score</p> <p>Knowing the contents of the ABCD2 and the CHA2DS2-VASc scoring system is not necessary for the PLAB 1 exam but knowing when to apply each scoring system is vital.</p> <p>ABCD2 score The ABCD2 score is to assess risk of future stroke in patients who have already suffered from a transient ischaemic attack (TIA) or suspected transient ischaemic attack.</p>



	<p>An example of use of a ABCD2 score is a patient presenting to A&E or a GP surgery with symptoms of a TIA. The ABCD2 score helps the physician decide on how to manage the patient. If the patient scored high on the ABCD2 score, the physician would refer the patient for specialist assessment within 24 hours of the onset of symptoms, give a statin such as simvastatin 40 mg, and give an antiplatelet drug if the patient is not already taking any anticoagulation medication.</p> <p>CHA2DS2-VASc score</p> <p>The CHA2DS2-VASc score is to assess the risk of future stroke in patients who have atrial fibrillation. This score is then used to determine whether or not treatment is required with anticoagulation therapy.</p> <p>Remember: ABCD2 = Risk of future stroke following TIA CHA2DS2-VASc = Risk of future stroke in patients with atrial fibrillation</p>
66.	<p>A 78 year old woman admitted for a urinary tract infection for the last 10 days has become increasingly confused. Her son has noted her level of consciousness has been fluctuating and is disoriented to time and place. She is more withdrawn but intermittently becomes very noisy and agitated. What is the SINGLE most likely diagnosis?</p> <p>A. Dementia B. Delirium C. Schizophrenia D. Depression E. Cerebral mass</p> <p>For PLAB 1 neurology, know the difference between dementia and delirium. The onset for delirium is more acute with fluctuating levels of consciousness. There will also be disorientation, mood changes, paranoia, and some memory impairment. Just know how to recognize the diagnosis and the basic management.</p> <p>Delirium Presentation:</p> <ul style="list-style-type: none">• Acute onset• Fluctuating levels of consciousness• Disorientation, mood changes, paranoia• Memory impairment• Withdrawn or heightened arousal <p>Diagnosis:</p> <ul style="list-style-type: none">• Clinical assessment via DSM-V• Consider radiological imaging to rule out organic pathology <p>Treatment:</p> <ul style="list-style-type: none">• Treat underlying cause• Consider anti-psychotics



67.	<p>A 30 year old primigravid woman of 32 weeks gestation presents to clinic with left facial droop of 2 days duration. On examination, there is no rash. The nasolabial fold is flattened, there is a drooping of the left corner of her mouth when asked to smile, and eye closure is weaker on the left side. She is unable to puff her cheeks but is able to wrinkle her forehead. What is the SINGLE most likely cause to these clinical findings?</p> <p>A. Ramsay-Hunt syndrome B. Parotid gland tumour C. Bell's palsy D. Internal capsule stroke E. Lyme disease</p> <p>For PLAB 1 know cranial nerve palsies for CN III, VI, and VII. These are the most common on the exam. In addition to the clinical findings on examination, another PLAB 1 clue pointing to this diagnosis: pregnancy in the third trimester. Another scenario would be the patient would be diabetic. Look closely at the age: PLAB 1 would have a much older patient for stroke and there should some upper/lower limb deficit. There is no travel history or going to the jungle; therefore for PLAB 1, option E is ruled out. Option A would have a prior infection in the case stem and would most likely present with a rash.</p> <p>Bell's palsy Presentation:</p> <ul style="list-style-type: none">- Unilateral facial weakness ; facial droop- Drooling- Difficulty in eye closure- Associated with pregnancy and diabetes <p>Diagnosis:</p> <ul style="list-style-type: none">- Clinical diagnosis- Borrelia antibodies and varicella zoster antibodies to rule out Lyme disease, Ramsay-Hunt syndrome (case dependent)- MRI brain to rule out stroke or tumours (case dependent) <p>Treatment:</p> <ul style="list-style-type: none">- Within 72 hours onset, give prednisolone (also in pregnancy)- Acyclovir if suspecting Ramsay-Hunt syndrome- Eye protection with eye patch
68.	<p>A 56 year old woman with multiple sclerosis presents with drooping her lips on the left side. She also has loss of sensation over her face, and hearing impairment. She has lack of voluntary coordination of muscle movements. What is the SINGLE most likely anatomical site affected?</p> <p>A. Cerebellum B. Cerebrum C. Spinal cord D. Brain stem E. Optic nerve</p>



	<p>Brain stem would need to be involved here as there are features involving cranial nerve V, VII and VIII. The cranial nerves III-XII emerge from the brainstem. These cranial nerves supply the face, head, and viscera.</p>
69.	<p>A 40 year old woman suddenly collapsed and died. At the post-mortem autopsy, it was found that there was a bleed from a berry aneurysm from the circle of Willis. Which is the most likely space that the bleeding occurred in?</p> <p>A. Subarachnoid B. Subdural C. Extradural D. Subparietal E. Brain ventricles</p> <p>Subarachnoid haemorrhage (SAH) is spontaneously in the context of a ruptured cerebral aneurysm but may be seen in association with other injuries when a patient has sustained a traumatic brain injury. Aneurysm formation is the most common aetiology.</p> <p>There is also an association with polycystic kidney disease, Ehlers Danlos syndrome and other connective tissue disease</p> <p>Head trauma is rare as a cause of SAH</p>
70.	<p>A 7 year old child is brought to the hospital by his teacher. The child was playing with other children and sudden fell down and hit the table and went unconscious for a few seconds before returning to his normal self. On probing further, the diagnosis of absence seizure was made. What is the SINGLE most likely reason that could have led to this diagnosis?</p> <p>A. The child had not eaten since morning B. The child suddenly stared blankly into space and there was up-rolling of eyes C. The child started moving his fingers uncontrollably before he fell D. The child's body became rigid and then started to jerk E. The child has a fever and feels unwell</p> <p>In PLAB 1 stems, absence seizures would usually be a child (<10 years) with either the parent or teacher noticing that the patient is "daydreaming" often and when they resume their studies they are not able to perform well. In this scenario however, the diagnosis was already given but they want you to know what is the history that could give you the diagnosis. Staring blankly into space and upturning of eyes for a few seconds and resuming activity almost immediately is indicative of absence seizures.</p> <p>Absence seizure</p> <p>Presentation:</p> <ul style="list-style-type: none">- Child usually <10 years old- Loss of awareness ("daydreaming"), stare blankly into space, will not respond to their surroundings- May be accompanied by upturning of eyes, other repetitive movements



	<ul style="list-style-type: none">- Will return to normal activities after seizure but may not perform well and feel tired- No photosensitivity- Maybe triggered by hyperventilation <p>Diagnosis:</p> <ul style="list-style-type: none">- EEG- Check FBC, glucose levels, ECG, MRI for other underlying causes <p>Treatment:</p> <ul style="list-style-type: none">- If recurring, sodium valproate or ethosuximide
71.	<p>A 41 year old male with hypertension and recurrent kidney stones presents to the Emergency Department with a headache of intense severity. He is also noted to have neck stiffness and pain. Labs were done and revealed a serum sodium of 131 mmol/L. What is the SINGLE most likely mechanism behind his serum sodium results?</p> <p>A. Decreased intake of food B. Polyuria C. Syndrome of inappropriate anti-diuretic hormone D. None of the above E. All of the above</p> <p>This is a 2 step question. First figure out the diagnosis and through that find out the answer to the question. Some questions will require you to do this. In this case, the diagnosis is subarachnoid hemorrhage (SAH) and it is also implied in the case stem that the patient has possible polycystic kidney disease (hypertension and recurrent kidney stones). Know the presentation, associations, investigations, and complications of SAH since there is considerable overlap of this topic between neurology and emergency. One of the major complications of SAH is hyponatremia. Hyponatremia commonly occurs in patients with aneurysmal subarachnoid haemorrhage. The mechanism that has been proposed as a cause is syndrome of inappropriate anti-diuretic hormone.</p> <p>Subarachnoid hemorrhage</p> <ul style="list-style-type: none">• Usually the result of bleeding from a berry aneurysm in the Circle of Willis <p>Presentation</p> <ul style="list-style-type: none">• Sudden and severe occipital headache described as the “worst headache of my life” or “thunderclap headache”• Neck stiffness or pain• Vomiting, collapse, seizures <p>Associations</p> <ul style="list-style-type: none">• Hypertension• Polycystic kidney disease → Berry aneurysms are found in 10% of patients with autosomal dominant adult polycystic kidney disease• Ehlers Danlos syndrome <p>Diagnosis</p> <ul style="list-style-type: none">• CT brain



	<ul style="list-style-type: none">• Lumbar puncture<ul style="list-style-type: none">○ Only done if CT is inconclusive + no contraindications○ The CSF of a lumbar puncture → bloody then xanthochromic (bilirubin) <p>Treatments for SAH are rarely or almost never asked in at this level. Save your brain space and memorize other important information.</p>
72.	<p>A 49 year old patient has Parkinson's disease. What is the SINGLE most useful medication in the management of his tremor and dystonia?</p> <p>A. Apomorphine B. Cabergoline C. Selegiline D. Amantadine E. Benzhexol</p> <p>Benzhexol (Trihexyphenidyl) is an anticholinergic agent and it is the drug of choice to treat parkinson's disease induced tremor. Anticholinergic agents have a limited role and should only be prescribed in young patients with severe tremor and dystonia. Orphenadrine is also another anticholinergic agent that is commonly used.</p>
73.	<p>A 53 year old man presents to clinic with complains of urinary incontinence and erectile dysfunction. He is seen to have ataxia, rigidity and a pill rolling tremor of the hands. On examination, postural hypotension is also noted. What is the SINGLE most likely diagnosis?</p> <p>A. Parkinson's disease B. Creutzfeldt-Jakob disease C. Shy-drager syndrome D. Huntington's disease E. Lewy body dementia</p> <p>Shy-drager syndrome</p> <ul style="list-style-type: none">• A rare neurodegenerative disorder, caused by cell loss in certain areas of the brain and the spinal cord, leading to a variety of symptoms characterised by Parkinsonian features, cerebellar ataxia and autonomic dysfunction (particularly urogenital) <p>Mean age at onset is between 50 and 70 years</p> <p>Presentation:</p> <ul style="list-style-type: none">• Urinary dysfunction → most common presentation• Erectile dysfunction• Postural hypotension• Cerebellar ataxia• Parkinsonian symptoms with poor response to levodopa



	<p><i>In the exam, if you get a stem with characteristics of parkinsonism (rigidity, pill rolling tremor of the hands) plus autonomic dysfunction (urinary incontinence, erectile dysfunction) consider Shy-drager syndrome as the answer.</i></p>
74.	<p>A 26 year old female presents with bladder incontinence, clumsiness when walking, shooting lower back pain, and blurry vision, and sensory loss. These symptoms have occurred all at once or in different combinations approximately every few months and each event lasts 3-4 days. There is swelling of the optic disc on fundoscopy, inability to walk heel to toe, and weakness at the hip girdles. What is the SINGLE most appropriate diagnostic test?</p> <p>A. CT head and spinal cord B. MRI brain and spinal cord C. Serum Vitamin B12 levels D. EMG E. None of the above</p> <p>This is a diagnosis of multiple sclerosis. The definitive diagnostic test would be MRI brain and spinal cord. This patient is presenting with upper motor neuron signs and optic neuritis.</p> <p>Multiple Sclerosis</p> <p>Presentation: Variety of symptoms involving motor and sensory mainly of the brainstem and cerebellum. It may be easier to divide them into groups to remember.</p> <ul style="list-style-type: none">• 1. <i>Transverse myelitis:</i><ul style="list-style-type: none">○ Weakness, sensory symptoms○ Urinary urgency and retention○ Flexor spasms○ Spastic quadriparesis or paraparesis• 2. <i>Brainstem:</i><ul style="list-style-type: none">○ Ataxia○ Diplopia○ Dysarthria○ Facial numbness○ Ophthalmoplegia○ Gaze palsy• 3. <i>Cerebellum</i><ul style="list-style-type: none">○ Ataxia○ Dysarthria○ Nystagmus



	<ul style="list-style-type: none">• PLAB 1 stem usually have some clue to optic neuritis. Optic neuritis is an acute, sometimes painful, reduction or loss of vision in one eye and is a relatively common presenting symptom of MS. Colour vision may be impaired• Also depression is common <p>Pattern is usually: symptoms evolve over days, plateau, then resolves over days/weeks</p> <p>Diagnosis:</p> <ul style="list-style-type: none">• Mostly a clinical diagnosis• MRI (definitive diagnostic test): demyelination and/or lesions disseminated in time and place• Oligoclonal bands in CSF <p>Treatment:</p> <ul style="list-style-type: none">• Acute: IV or oral methylprednisolone• Interferon-beta or glatiramer acetate (first line)
75.	<p>A 73 year old male presents with a history of falls over the past 12 month. His relatives have also noticed a rather strange behavior lately and more recently he has had episodes of enuresis. Examination reveals that he is disorientation to time and place, with a broad-based, clumsy gait. What is the SINGLE most likely diagnosis?</p> <p>A. Parkinson's disease B. Pituitary adenoma C. Cardiovascular disease D. Syringomyelia E. Normal pressure hydrocephalus</p> <p>The history of falls and broad based clumsy gait (balance and gait disturbance), strange behavior and disorientation to time and place (due to dementia), episodes of enuresis (urinary incontinence) points towards normal pressure hydrocephalus.</p> <p>Remember the classic triad.</p> <p>Normal pressure hydrocephalus</p> <p>Normal pressure hydrocephalus will present with prominent gait abnormalities early in the course of the disease that usually precede the onset of cognitive impairment. There will also be associated urinary incontinence.</p> <p>Normal pressure hydrocephalus is a reversible cause of dementia seen in elderly patients. It is thought to be secondary to reduced CSF absorption at the arachnoid villi.</p> <p>Has a classical triad of:</p> <ul style="list-style-type: none">• Urinary incontinence• Dementia• Gait abnormality (may be similar to Parkinson's disease)



	<p><i>"the wet, wobbly and wacky grandpa"</i></p> <p>This classical symptoms are known as Hakim's triad. The incontinence does not follow the pattern of spinal cord lesions (painless retention and overflow); rather, it is the apparently normal passage of urine in response to a full bladder, but without the patient being aware or particularly concerned by it. It is best thought of as part of the cognitive decline rather than a separate entity. In elderly patients it may be confused with urgency or gait problems preventing them getting to the toilet in time.</p>
76.	<p>A 54 year old man had a recent stroke. He now presents with ataxia, intentional tremors and dysarthria. Which part of the brain is most likely affected by the stroke?</p> <p>A. Inner ear B. Brain stem C. Diencephalon D. Cerebrum E. Cerebellum</p> <p>The ataxia, intentional tremors and dysarthria points towards a cerebellar disorder.</p> <p>Cerebellar Disorders</p> <p>Aetiology includes stroke or transient ischaemic attack (TIA)</p> <p>Presentation</p> <p>As the cerebellum is associated with motor control, lesions produce a range of movement disorders (ataxias). Lesions of the midline vermis of the cerebellum cause truncal ataxia, while lesions of the cerebellar hemispheres cause limb ataxia of the ipsilateral side.</p>
77.	<p>A 22 year old female presents with progressive difficulty in walking due to lower back pain. There is tingling and numbness in her hands that has radiated towards her elbows. On examination, cranial nerves are intact. There is no sensation of vibration or pin prick in her upper limbs to elbows and from lower limbs to hips. There are absent reflexes and mute plantars. Blood pressure is 124/85 mmHg and heart rate is 68 beats/minute. The patient had an episode of food poisoning two months ago. What is the SINGLE most likely diagnosis?</p> <p>A. Multiple sclerosis B. Guillain-Barre syndrome C. Myasthenia gravis D. Diabetic neuropathy E. Infective neuropathy</p> <p>PLAB 1 key features for case stem: young female with ascending polyneuropathy usually after a trigger (i.e. infection). There are absent reflexes therefore multiple sclerosis is ruled out since it involves upper motor neurons. Myasthenia gravis usually would have more emphasis of fatigue especially in the proximal muscles and cranial nerves would be affected. There is no clue in the stem that the patient is diabetic and even he is, the onset is acute while option D</p>



	<p>would require a more gradual progressive process. While the patient did have an infection, there was no history of travel and for option E to occur it would most likely be a diagnosis of Lyme disease.</p> <p>Guillain-Barre syndrome</p> <p>Presentation</p> <ul style="list-style-type: none">• Most are preceded by a upper respiratory tract infection or gastrointestinal infection• Case stem may have clues: Campylobacter jejuni, CMV, EBV, H. influenzae, Mycoplasma• Progressive ascending weakness +/- paraesthesia• Severe back pain, cranial nerve involvement• Tendon reflexes are lost <p>Diagnosis</p> <ul style="list-style-type: none">• CSF: increased protein level usually after 1st week; normal WBC• Nerve conduction test: hallmark = focal conduction block <p>Treatment</p> <ul style="list-style-type: none">• Intravenous immunoglobulin 0.4g/kg/day for 5 days or plasma exchange• If no response in 2 weeks, consider repeating intravenous immunoglobulin course or plasma exchange• Treat neuropathic pain with gabapentin• Consider referral to ICU if respiratory depression detected
78.	<p>A 55 year old was admitted to the hospital for investigations of haemoptysis. Two days after admission he develops alternating state of consciousness, sweating, and tremors. His temperature is 37.3°C. He gives a history drinking alcohol every day for the past year. What is the SINGLE most appropriate management?</p> <p>A. Acamprosate B. Chlordiazepoxide C. Antibiotics D. High potency vitamin B complex E. Disulfiram</p> <p>Acute Alcohol Withdrawal</p> <p>Patients often present with anxiety, tremor, hyperactivity, sweating, nausea and retching, tachycardia, hypertension and mild pyrexia. Symptoms peak at at 12-30 hours and subside by 48 hours</p> <p>Medications used in alcoholics</p> <ul style="list-style-type: none">• Benzodiazepines for acute withdrawal (NHS commonly uses Chlordiazepoxide) Chlordiazepoxide is used as sedation



	<ul style="list-style-type: none">• IV Pabrinex (Thiamine) (vitamin B1) is used to prevent Wernicke's encephalopathy which is a neuropsychiatric disorder caused by thiamine deficiency which is most commonly seen in alcoholics• Disulfiram: promotes abstinence - alcohol intake causes severe reaction due to inhibition of acetaldehyde dehydrogenase. Patients should be aware that even small amounts of alcohol (e.g. In perfumes, foods, mouthwashes) can produce severe symptoms. <i>Example of when to use disulfiram in PLAB: 40 year old man wants medication to serve as a deterrent when he takes alcohol</i>• Acamprosate: reduces craving, improves abstinence in placebo controlled trials. <i>Example of when to use disulfiram in PLAB: 40 year old man wants some medication to help him reduce cravings</i>
79.	<p>A 28 year old woman complains of double vision. She tires easily especially as the day progresses. There is difficulty climbing stairs, reaching for items on shelves, and brushing her hair. As she speaks, her speech fades gradually. Over the last week, she has had difficulty chewing and swallowing. On examination, there were no significant findings. She has a family history of thyroid disease. What is the SINGLE most likely diagnosis?</p> <p>A. Polymyositis B. Multiple sclerosis C. Guillain-Barré syndrome D. Myasthenia Gravis E. Motor neuron disease</p> <p>The symptoms here are classic for Myasthenia gravis. It is important to remember that there is a predisposition for autoimmune diseases to run in families hence the history of thyroid disease in the family in the stem.</p> <p>Myasthenia gravis</p> <p>Presentation:</p> <ul style="list-style-type: none">• Female (20-30 years) ; males (50-60 years)• Painless muscle weakness that increases with exercise (<i>This feature of fatigue often gives the diagnosis in the exam</i>) - It is even seen in the voice. For example, getting the patient to count up to 50. As the patient nears 50 their voice becomes less audible as they are fatiguing.• Ocular muscles involved - drooping eyelids• Dysphagia, dysarthria, dysphonia• Normal reflexes• Associated with hyperthyroidism



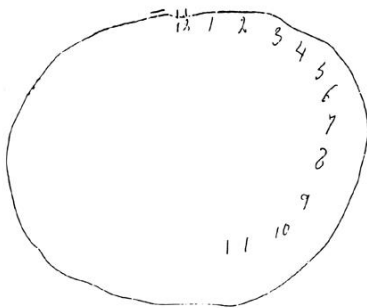
80. A 63 year old man presents after having a seizure. He is alert and orientated. On examination, inattention on the left side is noticed with hyperreflexia of the arm. What is the SINGLE most likely diagnosis?

- A. Cerebral tumour**
- B. Pituitary adenoma
- C. Cerebellar abscess
- D. Huntington's chorea
- E. Parkinsonism

Inattention or neglect is a feature of parietal lobe lesion. Seizure may occur in space occupying lesions.

The most likely explanation for this answer is that the cerebral tumour has caused the right parietal lobe of the brain to be affected which can lead to neglect for the left side of the visual field, causing a patient with neglect to behave as if the left side of sensory space is nonexistent (although they can still turn left).

In an extreme case, a patient with neglect might fail to eat the food on the left half of their plate, even though they complain of being hungry. If someone with neglect is asked to draw a clock, their drawing might show only the numbers 12 to 6, or all 12 numbers might be on one half of the clock face with the other half distorted or blank. Neglect patients may also ignore the contralesional side of their body; for instance, they might only shave, or apply makeup to, the non-neglected side. These patients may frequently collide with objects or structures such as door frames on the side being neglected.



This is how someone with hemineglect might draw a clock



81.	<p>A 63 year old man, known case of hypertension and smoker, presents to clinic with a sudden onset of weakness in the right arm and changes in speech which had resolved within a 24 hour period. On examination, there were no residual neurological findings and cardiology examination was normal. What is the SINGLE most appropriate next step in management?</p> <p>A. MRI brain B. CT brain C. Echocardiogram D. Electrocardiogram E. Carotid doppler scanning</p> <p>This is a classic presentation of transient ischaemic attack. Under the ABCD2 score, this patient has a score of 4. The most appropriate step according to guidelines is for carotid doppler scanning to check for carotid artery stenosis to assess the need for carotid endarterectomy. MRI would eventually be done but it would not be the “next step” as the patient no longer has residual neurological findings and his symptoms have completely resolved; therefore MRI at this moment would not be clinically beneficial.</p> <p>Transient ischaemic attack Presentation:</p> <ul style="list-style-type: none">• Facial weakness, unilateral arm weakness, speech problems• Association: smoking, hypertension, atrial fibrillation, ischaemic heart disease <p>Diagnosis:</p> <ul style="list-style-type: none">• ABCD2 score• Carotid doppler scan - definitive• MRI brain <p>Treatment:</p> <ul style="list-style-type: none">• On admission aspirin 300mg immediately unless contraindicated• Referred to stroke unit to be assessed• Carotid endarterectomy and stenting - need according to carotid doppler results• Antihypertensives, antiplatelets, statins, lifestyle modification
82.	<p>A 58 year old man has a progressively worsening headache and confusion. He had a fall three days ago after slipping and hitting his head in the garden. He has a history of alcohol abuse. What is the SINGLE most appropriate investigation?</p> <p>A. X-ray skull B. Electrocardiogram C. Computed tomography brain scan D. Magnetic resonance imaging brain scan E. Electroencephalogram</p> <p>The likely cause of his confusion and worsening headache is a subdural haemorrhage. A CT scan is diagnostic.</p>



	<p>Subdural haematoma may be acute or chronic. In the chronic subdural haematoma, symptoms may not be apparent for several days or weeks. Symptoms of subdural haematomas are: fluctuating level of consciousness, \pm insidious physical or intellectual slowing, sleepiness, headache, personality change and unsteadiness.</p> <p>Chronic subdural haematoma occurs in the very old or in severe alcoholics. A shrunken brain is rattled around the head by minor trauma, tearing venous sinuses. Over several days or weeks, mental function deteriorates as haematoma forms. CT scan is diagnostic, and surgical evacuation provides dramatic cure.</p> <p>Remember in PLAB, chronic subdural haematoma usually presents as an elderly, on anticoagulation or an alcoholic who may have history of fall. Slow onset of symptoms compared to epidural haematoma.</p>
83.	<p>A 67 year old man with a known case of diabetes mellitus type II and prostate carcinoma presents to clinic with back pain, groin numbness, and inability to initiate voiding. Which of the following is the SINGLE most likely mechanism to explain for these symptoms?</p> <p>A. Cauda Equina syndrome B. Urinary outlet obstruction secondary to prostate carcinoma C. Hydronephrosis secondary to urolithiasis D. Neurogenic bladder from long-standing diabetes mellitus type II E. None of the above</p> <p>PLAB 1 questions are usually very straight-forward. They would usually only ask diagnosis, investigation, and management. However occasionally, there would be a few odd questions where they would ask for the mechanism behind certain pathology. In this case stem, the patient has a history of prostate carcinoma; therefore, the symptoms presented here would most likely indicate metastasis/tumour that is compressing on the cauda equina. Option B would produce a degree of voiding dysfunction but not in the initiation of voiding and there would not be sensory changes. Option D although possible will not produce severe back pain or perineal numbness.</p> <p>Cauda Equina syndrome Presentation:</p> <ul style="list-style-type: none">- Severe back pain- Groin numbness / "saddle distribution sensory loss"- Difficulty to initiate voiding- Urinary or faecal incontinence- Distal motor weakness <p>Diagnosis:</p> <ul style="list-style-type: none">- MRI spine <p>Treatment:</p> <ul style="list-style-type: none">- This is a neurosurgical emergency and needs neurosurgery referral



84. A 56 year old male has increased thirst and increased micturition. He is found to have an intracranial tumour. Where is the SINGLE most likely location for the tumour?

A. Diencephalon

- B. Midbrain
C. Medulla
D. Pons
E. Cerebrum

This is most likely a diagnosis of Diabetes Insipidus. The diencephalon consists of the [thalamus](#), the [hypothalamus](#), the [epithalamus](#) and the [subthalamus](#). The hypothalamus is a crucial part of the endocrine system of the body and so therefore the most likely location for an intracranial tumour causing diabetes insipidus would be the diencephalon.

In contrast, the most likely location for a brain tumour causing SIADH (Syndrome of Inappropriate Antidiuretic Hormone) would be the cerebrum or cerebellum.

Both DI and SIADH are common in cancer patients or those with brain tumours so it is important to know the most likely tumour locations causing these diseases.

Some important PLAB 1 points for Diabetes Insipidus:

Normal patient	Diabetes insipidus		
Fluid restriction causes a decrease in urine volume and an increase in urine osmolality	Despite fluid restriction, urine volume remains high and urine osmolality is decreased		
	Central Diabetes insipidus		
	Urine volume decreases and urine osmolality increases after administering desmopressin	There is no change after administering desmopressin	

Plasma osmolality (mOsm/kg)

After fluid deprivation, If plasma osmolality >305, the patient has diabetes insipidus

Urine osmolality (mOsm/kg)

	Central Diabetes insipidus	Nephrogenic Diabetes insipidus
After fluid deprivation	<300	<300
After desmopressin	>800	<300



85.	<p>A 75 year old lady on warfarin for atrial fibrillation is brought into clinic by her daughter. Her daughter is concerned as her mother is progressively getting more confused over the last couple of weeks. On physical examination, the lady was noticed to have bruises on her arms. She has an INR of 7. What is the SINGLE most likely diagnosis?</p> <p>A. Alzheimers B. Delirium C. Chronic Subdural haemorrhage D. Vascular dementia E. Pick's dementia</p> <p>She is an elderly lady on anticoagulation. A trivial fall may have gone unnoticed. Warfarin and a high INR are risk factors for a subdural haemorrhage. Progressive confusion over days to weeks support this diagnosis.</p> <p>Chronic subdural haematoma occurs in the very old or in severe alcoholics. A shrunken brain is rattled around the head by minor trauma, tearing venous sinuses. Over several days or weeks, mental function deteriorates as haematoma forms. CT scan is diagnostic, and surgical evacuation provides dramatic cure.</p> <p>Remember in PLAB, Chronic subdural haematoma usually presents as an elderly, on anticoag or an alcoholic who may have history of fall. Slow onset of symptoms compared to epidural haematoma.</p>
86.	<p>The daughter of a 69 year old male found her father alone in his apartment with confusion, bruising on his left arm and an unsteady gait. CT brain reveals a midline shift away from the side of a clot. What is the SINGLE most likely diagnosis?</p> <p>A. Subarachnoid haemorrhage B. Intracerebral bleed C. Subdural haemorrhage D. Epidural haemorrhage E. Complex partial seizure</p> <p>In most subdural haemorrhage case stems for PLAB 1, most will present as elderly and male (chronic subdural haemorrhage). Pay attention to history details such as history of falls or other trauma.</p> <p>Subdural haemorrhage</p> <p>Presentation:</p> <ul style="list-style-type: none">- Fluctuating levels of consciousness- Physical or intellectual slowing- Sleepiness, headache, personality changes- Unsteadiness- Seizures <p>Diagnosis:</p>



	<p>- CT brain / MRI brain – clot +/- midline shift; “crescent shaped” haematoma</p> <p>Treatment:</p> <p>- First line: Irrigation / evacuation via burr twist drill and burr hole craniostomy</p>
87.	<p>A 67 year old woman with a history of atrial fibrillation with presents to emergency with slurred speech, asymmetric facial weakness, left sided hemi-paresis and ataxia. On arrival to the A&E her GCS is 14/15. She is increasingly agitated. Which is the SINGLE most appropriate next course of action?</p> <p>A. Anticoagulation B. Start thrombolysis treatment C. Give aspirin D. Give lorazepam E. Urgent CT head</p> <p>The history and examination are convincing for a stroke. Before any treatment can happen we need to exclude a haemorrhagic stroke with the help of imaging. CT helps rule out primary haemorrhage.</p> <p>The other options are less likely to be the appropriate next course of action.</p> <p>Anticoagulation → with regards to atrial fibrillation, RCP state that “anticoagulants should not be started until brain imaging has excluded haemorrhage, and usually not until 14 days have passed from the onset of an ischaemic stroke”</p> <p>Thrombolysis or aspirin → are the treatment options for ischaemic strokes but cannot be started until a CT scan excludes a haemorrhage.</p> <p>Lorazepam → Agitation is common in intracranial events, especially haemorrhages, but should not be treated with sedation as this can mask real fluctuations in consciousness levels.</p> <p>Basically, all treatments that can cause bleeding should be held off until haemorrhagic stroke is ruled out by imaging</p> <p>Stroke management</p> <p>Summary of management of acute stroke:</p> <ul style="list-style-type: none">• blood glucose, hydration, oxygen saturation and temperature should be maintained within normal limits• aspirin 300mg orally or rectally should be given as soon as possible if a haemorrhagic stroke has been excluded• Thrombolysis should only be given if it is administered within 4.5 hours of onset of stroke symptoms and haemorrhagic stroke has been excluded by imaging (Alteplase is currently recommended by NICE) <p>Post management stroke</p>



	<ul style="list-style-type: none">• Aspirin 300 mg daily for 2 weeks is given immediately after an ischaemic stroke is confirmed by brain imaging.• Clopidogrel 75 mg daily is then given long-term• If clopidogrel is contraindicated or not tolerated, give a combination of modified-release dipyridamole and low dose aspirin.• Ensure a statin has been offered.
88.	<p>A 34 year old housemaid presents with severe headaches in the back of her head for several days and pain on flexing her neck. The pain is worsened by movements. On examination, there is limited range of movement of the neck. What is the SINGLE most likely diagnosis?</p> <p>A. Subdural haemorrhage B. Cervical spondylosis C. Subarachnoid haemorrhage D. Meningitis E. Cluster headache</p> <p>Cervical spondylosis is chronic cervical disc degeneration with herniation of disc material, calcification and osteophytic outgrowths.</p> <p>Headache in the back of head and pain on flexing neck is an early feature of cervical spondylosis which gradually progress to later symptoms like radiculopathies due to root compression in arms and hands.</p>
89.	<p>A 75 year old nursing home resident complains of worsening headache, and impaired vision for 4 days. Her daughter says she is getting more and more confused day by day. She has multiple bruises on her head. What is the SINGLE most likely cause of her confusion?</p> <p>A. Alcohol intoxication B. Infection C. Subdural haematoma D. Hypoglycaemia E. Hyponatraemia</p> <p>Among the given answers, subdural haematoma fits the best. The multiple bruises on her head suggest head injury which can lead to subdural haematoma. Headache, confusion and impaired vision for 4 days could occur in chronic subdural haematoma</p> <p>She is an elderly lady thus a trivial fall may have gone unnoticed.</p> <p>Remember in PLAB, chronic subdural haematoma usually presents as an elderly, on anticoag or an alcoholic who may have history of fall. Slow onset of symptoms compared to epidural haematoma.</p> <p>In this case, there is no history of anticoagulation or history of alcoholism. But the picture still fits chronic subdural haematoma.</p>



90. A previously healthy 2 year old girl is brought to the Emergency Department by her mother after having witnessed the child's body suddenly going stiff followed by uncontrolled twitching of the arms and legs for about 5 minutes. There was frothing at the mouth and on examination now the child is drowsy. Temperature on admission was 38°C. This was a first time event. What is the SINGLE next appropriate management?

A. Paracetamol and observation

- B. Diazepam per rectal
- C. Lumbar puncture
- D. CT brain
- E. EEG

This is a diagnosis of simple febrile seizure. Under current guidelines, this is a first occurrence and therefore only option A is needed. There are no indications that there is meningitis in the stem and also the patient is currently in a postictal state ("drowsy"); therefore, lumbar puncture is not appropriate at this time. If this is only a first time event, both option D and E is not necessary unless there are indications pointing to a more serious pathology (haemorrhage, status epilepticus). Diazepam under current guidelines is useful as a preventative measure if febrile seizures were occurring frequently or if the seizure has not stopped while in Emergency. Note the difference between simple and complex febrile seizures for management. Most likely for PLAB 1, the case stem would be simple febrile seizures.

Simple febrile seizures

Presentation:

- Age group: 3 months - 6 years
- Sudden, rapid increase in temperature ($> 38^{\circ}\text{C}$)
- < 15 minutes
- General tonic-clonic seizure
- Post-ictal state \rightarrow drowsiness, sleeping

Diagnosis:

- Blood and urine test to rule out infection
- Consider lumbar puncture for meningitis if it is highly suspicious only
- Mostly a clinical diagnosis, rule out other pathology

Treatment:

- Reassurance and counseling
- Paracetamol to reduce fever and observation - if first event
- Diazepam per rectal as prophylaxis if more than once



91. A 45 year old man, with no known medical illnesses, presents to the clinic with left facial pain for the past month. It is a sharp shooting pain that radiates around his left cheek while chewing. It would last a few seconds repeatedly throughout the day. He has taken ibuprofen but with no relief. On examination: blood pressure is 120/70 mmHg, neurological exam is normal, palpation to the left jaw and cheek elicits pain although jaw muscles are of full strength. What is the SINGLE most appropriate management for this condition?

- A. Amitriptyline
- B. Patient controlled analgesia
- C. Gabapentin
- D. Carbamazepine**
- E. Microvascular decompression

Trigeminal neuralgia

Presentation

- Unilateral, shooting or stabbing electric shock-like facial pain
- Pain exacerbated with movement or touch especially in the jaw (CN V, 2nd and 3rd branch distribution)
- Abrupt in onset and termination

Diagnosis

- Clinical diagnosis
- MRI is routinely done to rule out other pathology (i.e. schwannoma, meningioma)

Treatment:

- Medication then surgery
- Carbamazepine > lamotrigine / phenytoin / gabapentin
- Surgical: microvascular decompression

92. A 70 year old man with a known case of ischaemic heart disease presents to emergency with paralysis of his left arm, sensory loss on the left side of his face, right sided gaze preference and homonymous hemianopsia. Which of the following is the SINGLE most likely artery to be affected?

- A. Right middle cerebral artery**
- B. Right posterior cerebral artery
- C. Left posterior cerebral artery
- D. Right anterior cerebral artery
- E. Basilar artery

For PLAB 1, stroke questions come in various forms ranging from the anatomical locations of the lesion, investigations and management. Pay special attention to the anatomy of the lesions especially the vascular distribution and the functions of the different parts of the brain. i.e. anterior cerebral artery – frontal and medial cerebrum



	<p>middle cerebral artery – lateral part of the hemisphere posterior cerebral artery – occipital lobe basilar artery – cerebellum, brainstem, occipital lobe</p> <p>Presentation:</p> <ul style="list-style-type: none">- Middle cerebral artery occlusion features:- Aphasia in the dominant hemisphere- Neglect in the non-dominant hemisphere- Contralateral paralysis (face & arm)- Contralateral sensory loss (face & arm)- Gaze preference toward side of lesion- Homonymous hemianopsia <p>Stroke general features:</p> <ul style="list-style-type: none">- Usually sudden onset with possible further progression that takes place over hours- May have underlying ischaemic heart disease, carotid bruits, atrial fibrillation <p>Diagnosis:</p> <ul style="list-style-type: none">- CT brain with no contrast to rule out whether stroke is ischaemic or haemorrhagic (initial investigation)- Diffusion-weighted MRI brain provides more sensitivity in acute setting <p>Treatment:</p> <ul style="list-style-type: none">- ABC protocol- Blood glucose – keep between 4-11mmol/L & IV fluid hydration- If ischaemic stroke – give Aspirin 300mg PO- If- 4.5 hours)
93.	<p>A 52 year old man presents with visual hallucinations and features of cognitive impairment including memory loss. He has a tremor and a festinating gait. What is the SINGLE most likely diagnosis?</p> <p>A. Frontotemporal dementia B. Lewy body dementia C. Delirium tremens D. Alzheimer's disease E. Huntington's disease</p> <p>The most important features of Lewy body dementia that differentiate it from the other forms of dementia is the:</p> <ul style="list-style-type: none">• Visual hallucinations• Fluctuating course with lucid intervals• Signs of mild Parkinsonism



	<p>Two of which are found in this stem: signs of parkinsonism and visual hallucinations.</p> <p>Typical presentation of lewy body dementia</p> <ul style="list-style-type: none">• Dementia is usually the presenting feature, with memory loss, decline in problem solving ability and spatial awareness difficulties.• Characteristically there are fluctuating levels of awareness and attention.• Signs of mild Parkinsonism (tremor, rigidity, poverty of facial expression, festinating gait). Falls frequently occur.• Visual hallucinations (animals or humans) and illusions. → <i>This is particularly important to differentiate lewy body from other types of dementia in the PLAB exam</i>• Sleep disorders including rapid eye movement sleep disorder, restless legs syndrome
94.	<p>A 45 year old man presents to clinic for his routine diabetic check-up. The patient has normal tone, 5/5 power, normal plantars and proprioception. There is sensory stimulus on the medial side of the right lower leg. Which of the following is the SINGLE most likely dermatome to be affected?</p> <p>A. L1 B. L2 C. L3 D. L4 E. L5</p> <p>Know dermatomes for PLAB 1. These questions do sometimes appear on the exam and therefore would be useful to know. Usually, it would be the major dermatomes of the upper and lower limbs.</p> <p>Dermatomes</p> <p>Presentation:</p> <ul style="list-style-type: none">• PLAB 1 may appear as a diabetic neuropathy stem or a trauma with sensory loss• It may also appear as just a straightforward statement asking for the dermatome of a specific part of the body with no case stem <p>Diagnosis:</p> <ul style="list-style-type: none">• N/A <p>Treatment:</p> <ul style="list-style-type: none">• N/A



95. A 49 year old chronic alcoholic with established liver damage is brought to the hospital after an episode of heavy drinking. He is not able to walk straight and is complaining of double vision. He is shouting obscenities and expletives. What is the SINGLE most likely diagnosis?

- A. Korsakoff psychosis
- B. Delirium tremens
- C. Wernicke's encephalopathy**
- D. Tourettes syndrome
- E. Alcohol dependence

This man is suffering from Wernicke's encephalopathy.

Wernicke's encephalopathy is a neuropsychiatric disorder caused by thiamine deficiency which is most commonly seen in alcoholics. A classic triad of confusion, ophthalmoplegia and ataxia may occur.

Treatment is with urgent replacement of thiamine (vitamin B1)

If not treated Korsakoff's syndrome may develop as well. This is termed Wernicke-Korsakoff syndrome and is characterised by the addition of antero- and retrograde amnesia and confabulation in addition to the above classic triad.

Wernicke's Encephalopathy	Wernicke's - Korsakoff syndrome (or just Korsakoff syndrome)
Triad of: <ul style="list-style-type: none">1. Confusion2. Ataxia3. Ophthalmoplegia	Addition of: <ul style="list-style-type: none">4. Amnesia5. Confabulation

96. A 72 year old man becomes confused over a period of 2 weeks. He used to be active and goes for long walks. Now he stares at the wall, barely talks to anyone, and sleeps majority of the day. His daughter recalls that he fell down the stairs about a week before the mental changes began. What is the SINGLE most likely diagnosis?

- A. Chronic Subdural haemorrhage**
- B. Epidural haematoma
- C. Alzheimers
- D. Vascular dementia
- E. Pick's dementia

An elderly man with a history of fall with progressive confusion over the last couple of days points towards the diagnosis of chronic subdural haemorrhage.



	<p>Chronic subdural haematoma occurs in the very old or in severe alcoholics. A shrunken brain is rattled around the head by minor trauma, tearing venous sinuses. Over several days or weeks, mental function deteriorates as haematoma forms. CT scan is diagnostic, and surgical evacuation provides dramatic cure.</p> <p>Remember in PLAB, Chronic subdural haematoma usually presents as an elderly, on anticoag or an alcoholic who may have history of fall. Slow onset of symptoms compared to epidural haematoma.</p>
97.	<p>An 50 year old man presents to the clinic with his wife. She states that her husband has had a noticeable change in personality. He is impulsive and occasionally demonstrates inappropriate behavior. On examination, he has difficulty naming objects, but his memory, ability to calculate, and his visuospatial skills are intact. What is the SINGLE most likely diagnosis?</p> <p>A. Alzheimer's disease B. Frontotemporal dementia (Pick's disease) C. Parkinson's disease D. Wilson's disease E. Lewy body dementia</p> <p>The hallmark of Pick's disease is behavioural changes, inappropriate behaviour, and disinhibition. In early stages of Pick's disease memory, visuospatial skills, and calculation are relatively intact and this differs from Alzheimer's where usually memory would be affected first.</p> <p>Frontotemporal dementia (Pick's disease) Presentation:</p> <ul style="list-style-type: none">• Behavioural changes, disinhibition, inappropriate behaviour• Lip smacking• Early stages - memory, ability to calculate, and visuospatial skills are intact• Later stages - memory and cognitive function disrupted• Age group - younger than Alzheimers - 30-65 years <p>Diagnosis:</p> <ul style="list-style-type: none">• Clinical diagnosis• Lund–Manchester criteria, NINDS criteria• MRI brain to rule out other pathology <p>Treatment:</p> <ul style="list-style-type: none">• Structured daily routine to control behaviour; predominantly supportive care• Trial of trazodone or selective serotonin reuptake inhibitors



98. A 44 year old man with a history of chronic alcohol abuse attends A&E. He is unkempt, drowsy, walks with an ataxic gait and has poor memory. It is believed he has not eaten in forty eight hours. A decision to commence chlordiazepoxide and IV Pabrinex is made. Which vitamin, present in Pabrinex, can prevent the progression of his symptoms?

- A. Vitamin B1
B. Vitamin B6
C. Vitamin B12
D. Vitamin C
E. Vitamin D

This man is suffering from Wernicke's encephalopathy. Vitamin B1, also called thiamine, is present in Pabrinex and it is needed to treat Wernicke's encephalopathy.

Wernicke's encephalopathy is a neuropsychiatric disorder caused by thiamine deficiency which is most commonly seen in alcoholics. A classic triad of confusion, ophthalmoplegia and ataxia may occur.

Treatment is with urgent replacement of thiamine

If not treated Korsakoff's syndrome may develop as well. This is termed Wernicke-Korsakoff syndrome and is characterised by the addition of antero- and retrograde amnesia and confabulation in addition to the above classic triad.

Wernicke's Encephalopathy	Wernicke's - Korsakoff syndrome (or just Korsakoff syndrome)
Triad of: 1. Confusion 2. Ataxia 3. Ophthalmoplegia	Addition of: 4. Amnesia 5. Confabulation

99. A 53 year old chronic alcoholic was brought to the emergency department with an alternating state of consciousness, nausea and vomiting. He has unsteady, uncoordinated walking and complains of double vision. On examination of his face, his eyelids seem to be drooping and nystagmus is seen. He denies having taken alcohol in the last 12 hours. What is the SINGLE most appropriate management?

- A. Acamprosate
B. Chlordiazepoxide
C. Diazepam
D. High potency vitamin B complex
E. Disulfiram



This man is suffering from Wernicke's encephalopathy. Vitamin B1, also called thiamine, is present in Pabrinex and it is needed to treat Wernicke's encephalopathy.

Wernicke's encephalopathy is a neuropsychiatric disorder caused by thiamine deficiency which is most commonly seen in alcoholics. A classic triad of confusion, ophthalmoplegia and ataxia may occur.

Treatment is with urgent replacement of thiamine

If not treated Korsakoff's syndrome may develop as well. This is termed Wernicke-Korsakoff syndrome and is characterised by the addition of antero- and retrograde amnesia and confabulation in addition to the above classic triad.

Wernicke's Encephalopathy	Wernicke's - Korsakoff syndrome (or just Korsakoff syndrome)
Triad of: 1. Confusion 2. Ataxia 3. Ophthalmoplegia	Addition of: 4. Amnesia 5. Confabulation

- 100.** A 31 year old man with no past medical history complains of severe headache since 2 hours ago during work. The headache is mainly localized to the left side and is associated with photophobia. A similar episode had occurred a few months ago which had lasted over 2 weeks and resolved spontaneously. During the examination, he is unable to sit still with obvious agitation and anxiety. What is the SINGLE most likely diagnosis?

- A. Subarachnoid haemorrhage
- B. Epidural haemorrhage
- C. Tension headache
- D. Cluster headache**
- E. Migraine

For PLAB 1, make sure you can differentiate the different types of headaches (tension, cluster, migraine). Cluster headache case stems usually have a young male with a headache localized to one side along with some autonomic features. Also, there should be a past history of episodes over a couple of weeks. Another clue is people with cluster headaches usually move around while in migraines they have a tendency to be lying down in a dark room.

Cluster headache

Presentation:

- Male (30-40 years)
- - Excruciating headache: unilateral orbital, supraorbital, temporal
- - Pain typically occurs once or twice a day, each episode lasting 15 mins - 2 hours
- These headaches can go on and off for 7 days – 1 year



	<ul style="list-style-type: none">- Triggers: stress, alcohol, exercise- Accompanied by redness, lacrimation, lid swelling, nasal stuffiness- Intense pain around one eye (recurrent attacks 'always' affect same side) <p>Diagnosis:</p> <ul style="list-style-type: none">- Mainly clinical diagnosis <p>Treatment:</p> <ul style="list-style-type: none">- Acute: sumatriptan subcutaneous + 100% oxygen +/- lidocaine intranasally- Prevention: prednisolone, verapamil
101.	<p>A 45 year old man has back pain radiating down to his legs. He has motor weakness with knee extension and foot dorsiflexion. On examination, perineal sensory loss is noted. What is the SINGLE most appropriate action?</p> <p>A. Analgesia, rest and review in 6 weeks B. Administer benzodiazepine C. Encourage to keep active and referral to physiotherapist D. Advise on correct sitting position and posture E. Immediate referral to orthopaedic surgeon</p> <p>This is a classic example of cauda equina syndrome. It is a serious neurologic condition in which damage to the cauda equina causes loss of function of the nerve roots of the spinal canal below the termination (conus medullaris) of the spinal cord. Any lesion which compresses or disturbs the function of the cauda equina may disable the nerves although the most common is a central disc prolapse.</p> <p>Spinal cord compression or cauda equina syndrome are neurological emergencies that require immediate referral and intervention.</p> <p>The management of true cauda equina syndrome frequently involves surgical decompression.</p> <p>Pain due to a herniated lumbosacral disc may settle within six weeks. If it does not, or there are red flag signs such as the possibility of cauda equina syndrome like in this case, referral to an orthopaedic surgeon or a neurosurgeon should be considered.</p> <p>Red flags that suggest cauda equina syndrome include:</p> <ul style="list-style-type: none">• Severe or progressive bilateral neurological deficit of the legs, such as major motor weakness with knee extension, ankle eversion, or foot dorsiflexion• Recent-onset urinary retention and/or urinary incontinence (caused by loss of sensation when passing urine).• Recent-onset faecal incontinence (due to loss of sensation of rectal fullness)• Perianal or perineal sensory loss (saddle anaesthesia or paraesthesia)



102.	<p>A 60 year old woman presents with acute onset of bone and back pain following a rough journey in a car. On examination, tenderness at the mid-thoracic vertebra was noted. The pain is goes away when she bends forward. What is the SINGLE most likely diagnosis?</p> <p>A. Osteoporotic fracture of vertebra B. Myofascial pain syndrome C. Whiplash injury D. Multiple myeloma E. Bone metastasis</p> <p>Myofascial pain syndrome is a chronic pain disorder. In myofascial pain syndrome, pressure on sensitive points in your muscles (trigger points) causes pain in seemingly unrelated parts of your body. This is called referred pain.</p> <p>Myofascial pain syndrome typically occurs after a muscle has been contracted repetitively. This can be caused by repetitive motions used in jobs or hobbies or by stress-related muscle tension.</p> <p>Only myofascial pain/muscle sprain relieves on change of position.</p>
103.	<p>A 40 year old woman with a history of epilepsy presents to clinic with multiple fleshy nodules and several light brown, round macules with a smooth border on her back, arms and legs. There are also freckles under her arms. What is the SINGLE most likely diagnosis?</p> <p>A. Neurofibromatosis type I B. Neurofibromatosis type II C. Tuberous sclerosis D. Hereditary haemorrhagic telangiectasia E. Sturge–Weber syndrome</p> <p>While this is more of dermatology/connective tissue topic more than a neurology topic, neurofibromatosis type I (NF1) does have present with neurological deficits. Know how to differentiate between type I and type II as well as the basic management.</p> <p>Neurofibromatosis type I Presentation:</p> <ul style="list-style-type: none">• Café au lait spots, axillary freckling and neurofibromas• Lisch nodules (hamartomas on the iris)• Optic gliomas• Scoliosis, bone dysplasias• Epilepsy / seizures• Cognitive impairment <p>Diagnosis:</p> <ul style="list-style-type: none">• The National Institutes of Health Consensus Development Conference diagnostic criteria



	<p>Treatment:</p> <ul style="list-style-type: none">• Conservative• Routine monitoring and counselling• Neurofibromas - if irritation, removal by laser or surgical• Malignant peripheral nerve sheath tumors - radiation and surgical excision
104.	<p>A 31 year old man, known case of alcohol abuse, is brought into Emergency by his friend from a night club. The friend saw the patient suddenly collapse on the dance floor where his body went stiff then there was twitching of his legs followed by involuntary voiding. What is the SINGLE most likely diagnosis?</p> <p>A. Complex partial seizure B. Generalised myoclonic seizure C. Generalised clonic seizure D. Generalised tonic seizure E. Generalised tonic-clonic seizure</p> <p>Know the difference between generalised and partial seizures in PLAB 1. Generalised seizures usually have patients with a loss of consciousness (i.e. "collapsed") while partial seizures do not. It is important to differentiate each subtype of the generalised seizures. Note that myoclonic seizures occur while the patient is conscious and lasts for only a few seconds. In this case, this patient's seizure activity is due to alcohol abuse and therefore should follow guidelines on management related to seizures secondary to alcoholism.</p> <p>Generalised tonic-clonic seizures Presentation:</p> <ul style="list-style-type: none">• Loss of consciousness• Stiffness (tonic) followed twitching of the arms and legs (clonic)• +/- involuntary voiding, drooling, up-rolling of eyes• Associations: alcohol/drug abuse, cerebrovascular disease, brain tumors, head injuries <p>Diagnosis:</p> <ul style="list-style-type: none">• EEG - initial• MRI or CT brain• Neuropsychological assessment <p>Treatment:</p> <ul style="list-style-type: none">• If alcohol related - thiamine, glucose, magnesium• If alcohol related - benzodiazepine for alcohol withdrawal symptoms and primary seizure prevention (lorazepam >> diazepam)• Sodium valproate - first line• Lamotrigine - second line



105. An 80 year old man has had an ischaemic stroke and was brought to the A&E department 6 hours after the onset of symptoms by his concerned daughter who found him lying on the floor at home. A CT brain has already been done and has confirmed the diagnosis. The patient has no drug allergies and no other comorbidities. What is the SINGLE most appropriate medication to be given to this patient upon discharge?

A. Clopidogrel 75 mg daily

B. Statin

C. Combination of modified-release dipyridamole (200 mg) and low dose aspirin (75 mg) daily

D. Warfarin

E. Aspirin 300 mg daily for 3 months

Post management of Transient ischaemic attack (TIA), Stroke, and Myocardial infarction (MI)

TIA	Stroke	Heart Failure	MI
<p>Clopidogrel (75 mg daily) is the preferred long-term antiplatelet.</p> <p>If clopidogrel is contraindicated or not tolerated, give a combination of modified-release dipyridamole (200 mg twice daily) and low dose aspirin</p> <p>Ensure a statin has been offered as soon as possible after a TIA</p>	<p>Aspirin 300 mg daily for 2 weeks is given immediately after an ischaemic stroke is confirmed by brain imaging.</p> <p>Clopidogrel 75 mg daily is then given long-term</p> <p>If clopidogrel is contraindicated or not tolerated, give a combination of modified-release dipyridamole (200 mg twice daily) and low dose aspirin.</p> <p>Ensure a statin has been offered.</p>	<p>Decrease mortality:</p> <ol style="list-style-type: none">ACE inhibitor (Enalapril, Lisinopril, Ramipril)Beta blocker (Bisoprolol, Carvedilol, Nebivolol) <p>(Initiate one at a time)</p> <p>Manage symptoms: Furosemide</p> <p>Add on if symptoms not controlled: Spironolactone, or Digoxin</p>	<p>ALL pts with MI on discharge:</p> <ul style="list-style-type: none">Dual antiplatelet therapy: Aspirin + Clopidogrel Note: Aspirin is continued life long Clopidogrel for 12 monthsBeta Blockers Offer BB to people who present acutely with MI as soon as they are hemodynamically stable Continue a beta-blocker for at least 12 months after an MI in people without heart failure. Continue a beta-blocker indefinitely in people with HFACEi Offer ACEi to people who present acutely with MI as soon as they are hemodynamically stable If intolerant to ACEi → use ARBSTATINS



106. A 56 year old lady has developed severe right sided headache which worsens whenever she goes under bright light. This has been occurring for the last 3 days. She feels nauseated, but has not vomited. She does not take any medication and has no relevant medical history. What is the SINGLE most likely diagnosis?

- A. Subarachnoid haemorrhage
- B. Chronic subdural haemorrhage
- C. Intracranial neoplasm
- D. Cluster headache
- E. Migraine**

She is suffering from Migraines. The hints provided here are that it is a unilateral headache associated with photophobia and nausea.

The other options given here are much less likely

Subarachnoid haemorrhage → Usually presents with the worst headache ever. What we call a “thunderclap headache”

Chronic Subdural haematoma → PLAB questions usually gives a history of an elderly, on anticoagulation or an alcoholic.

Intracranial neoplasm → Possible but less likely compared to migraine. The history of headaches would usually be longer. It is a space-occupying lesion, so one can expect a raised intracranial pressure (ICP). Headache, which is typically worse in the mornings, nausea and vomiting, seizures, and papilloedema

Cluster headache → usually presents with intense pain around one eye accompanied by redness, lacrimation, lid swelling and also nasal stuffiness

107. A 62 year old male is brought to the emergency department by his daughter as he is confused, and has an unsteady, uncoordinated walking. He is a known alcoholic and has been admitted recently with delirium tremens. On questioning, he denies any problem with his memory. He knows his name and address and convincingly states that he was at a betting shop in the morning. His daughter interjects saying that, that is untrue as he was at home. What is the SINGLE most likely diagnosis?

- A. Ganser syndrome
- B. Cotard syndrome
- C. Wernicke’s encephalopathy
- D. Korsakoff psychosis**
- E. Alcohol withdrawal

Korsakoff syndrome

This is termed Wernicke-Korsakoff syndrome and is characterised by the addition of antero- and retrograde amnesia and confabulation in addition to the classic triad of confusion, ataxia and ophthalmoplegia found in Wernicke's encephalopathy.



Those with Korsakoff syndrome may "confabulate," or make up, information they can not remember. They are not "lying" but may actually believe their invented explanations. They create events to fill the gaps in day-to-day memory. For example, a person who has been in hospital for several weeks may talk convincingly about having just visited their aunt earlier that day. This is more common in the early stages of the condition..

Individuals may seem able to carry on a coherent conversation, but moments later be unable to recall that the conversation took place or to whom they spoke. They can often answer questions promptly with inaccurate and sometimes bizarre answers.

Wernicke's Encephalopathy	Wernicke's - Korsakoff syndrome (or just Korsakoff syndrome)
Triad of: 1. Confusion 2. Ataxia 3. Ophthalmoplegia	Addition of: 4. Amnesia 5. Confabulation

- 108.** An 81 year old man is brought into clinic by his son who is concerned that his father doesn't seem to be himself. His wife died 3 years ago and has been depressed since. The son notes that his father has become increasingly forgetful, leaving taps running or the stove on when not in use. At times, he cannot articulate what he wants to say and is easily confused. CT brain reveals mild, diffuse cortical atrophy. Which of the following is the SINGLE most likely medication to be started first?

- A. Donepezil**
B. Memantine
C. Haloperidol
D. Olanzapine
E. Amitriptyline

Alzheimer's disease is a frequent neurology topic for PLAB 1. The main clues usually have an elderly patient undergoing a memory change with some inability to perform day to day tasks. Depending on the severity of the patient, they may have language deficits, executive dysfunction, and cortical atrophy on CT brain. Know the guidelines for pharmacological treatment. Acetylcholinesterase inhibitors donepezil, galantamine and rivastigmine are first line. Memantine is second line and for severe cases. This patient is not suffering from hallucinations; therefore, options C and D are ruled out. While the patient does have depression and would be placed on antidepressants, amitriptyline is contraindicated as it has anticholinergic side effects.

Alzheimer's disease

Presentation:

- Elderly > 65 years
- Early - memory loss (recent → distant), difficulty finding words,



- Followed by - progressive language deficits, inability to make decisions, confusion
- Late - disoriented, behavioural changes, hallucinations

Diagnosis:

- CT or MRI brain
- Hexamethylpropyleneamine oxime (HMPAO) single-photon emission computed tomography (SPECT) to differentiate Alzheimer's from Pick's disease and other pathology
- Mini-mental state exam – assess the severity of cognitive dysfunction and when to start medication

Treatment:

- Acetylcholinesterase inhibitors: donepezil, galantamine and rivastigmine - first line, mild to moderate
- Memantine - second line, severe cases
- Depression - SSRI
- Psychological changes that is harmful to self and others - antipsychotics

109. A 65 year old known alcoholic is brought into hospital with confusion, aggressiveness and ophthalmoplegia. He is treated with chlordiazepoxide. What is the SINGLE most appropriate medication to give alongside chlordiazepoxide?

- A. IV Antibiotics
- B. Glucose
- C. Acamprosate
- D. Disulfiram
- E. Vitamin B complex**

This man is suffering from Wernicke's encephalopathy.

Wernicke's encephalopathy is a neuropsychiatric disorder caused by thiamine deficiency which is most commonly seen in alcoholics. A classic triad of confusion, ophthalmoplegia and ataxia may occur.

Treatment is with urgent replacement of thiamine (vitamin B1)

If not treated Korsakoff's syndrome may develop as well. This is termed Wernicke-Korsakoff syndrome and is characterised by the addition of antero- and retrograde amnesia and confabulation in addition to the above classic triad.

Wernicke's Encephalopathy	Wernicke's - Korsakoff syndrome (or just Korsakoff syndrome)
Triad of: 1. Confusion 2. Ataxia 3. Ophthalmoplegia	Addition of: 4. Amnesia 5. Confabulation



110.	<p>A 73 year old woman presents to clinic accompanied by her son with a 6 month history of anorexia and altered bowel habits. She has no significant past medical history and is on aspirin. On examination, the patient has an expressionless face, she takes many steps to turn, has resting tremor in predominantly in her right hand, and cogwheel rigidity. Cognition is intact. What is the SINGLE most likely diagnosis?</p> <p>A. Malignancy B. Normal pressure hydrocephalus C. Parkinson's disease D. Progressive supranuclear palsy E. Huntington's disease</p> <p>The clinical examination above is classic of Parkinson's Disease: bradykinesia, rigidity, resting tremor, and postural instability. While the beginning of the case stem may point to possible malignancy the examination results point to Option C.</p> <p>Parkinson's disease Presentation:</p> <ul style="list-style-type: none">- >65 years (for PLAB 1)- Classic presentation on examination: bradykinesia, rigidity, resting tremor, and postural instability- +/- Extra-neurological features <p>Diagnosis:</p> <ul style="list-style-type: none">- Clinical diagnosis <p>Treatment:</p> <ul style="list-style-type: none">- Referral to neurologist before starting pharmacological management- Levodopa (gold standard): start when >70yrs or severe disruption of quality of life (whichever one comes first)
111.	<p>A 20 year old fit man suddenly develops severe lower back pain as he is getting up from bed. There is greater pain when he is lying supine with his leg raised. What is the SINGLE most likely diagnosis?</p> <p>A. Paget's disease B. Multiple myeloma C. Lumbosacral disc herniation D. Ankylosing spondylitis E. Cervical spondylosis</p> <p>Sudden onset of lower back pain and felt more during forward bending or similar movement like getting up from bed favours the diagnosis of lumbosacral disc herniation.</p> <p>Lumbosacral disc herniation Presentation</p>



	<p>If there is nerve entrapment in the lumbosacral spine, this leads to symptoms of sciatica which include:</p> <ul style="list-style-type: none">• Unilateral leg pain which radiates below the knee to the foot/toes• The leg pain being more severe than the back pain• Numbness, paraesthesia, weakness and/or loss of tendon reflexes, which may be present and are found in the same distribution and only in one nerve root distribution• A positive straight leg raising test (there is greater leg pain and/or more nerve compression symptoms on raising the leg).• Pain which is usually relieved by lying down and exacerbated by long walks and prolonged sitting <p>Large herniations can compress the cauda equina, leading to symptoms/signs of saddle anaesthesia, urinary retention and incontinence</p> <p>Investigation</p> <p>No investigation may be needed if the symptoms settle within six weeks. MRI still remains the most sensitive in showing disc herniations. Plain X-rays may be useful, as they can show misalignments, instabilities and congenital anomalies well but the investigation of choice for a disc prolapse is an MRI.</p>
112.	<p>A 74 year old woman was brought to clinic by her daughter for confusion and memory impairment. The patient would periodically start a task and forget to finish them and has difficulty naming objects. In the past few months, she has lost 5kg and does not sleep well at night. On examination, the patient was agitated and had decreased skin turgor, and not oriented to time or place. She repeatedly asks the same questions during the interview. What is the SINGLE most likely diagnosis?</p> <p>A. Vascular dementia B. Lewy body dementia C. Fronto-temporal (Pick's) dementia D. Alzheimer's disease E. Normal pressure hydrocephalus</p> <p>For PLAB 1, know all the above options well as they appear in high frequency. PLAB 1 key clues to Alzheimer's disease: memory changes first before personality. As night progresses they are unable to sleep. They would also have difficulty in daily tasks and be confused. Vascular dementia would have a "step-wise progression" and they would have had some sort of previous cardiovascular event in the stem. Lewy body dementia would require a clue into having parkinsonian symptoms and hallucinations. Pick's dementia presents with disinhibition and personality changes before memory impairment. Normal pressure hydrocephalus presents with gait disturbance, urinary incontinence, and confusion.</p> <p>Alzheimer's disease Presentation:</p> <ul style="list-style-type: none">- Elderly > 65 years- Changes in memory first – recent then distant



	<ul style="list-style-type: none">- Not oriented to time or place, apraxia, aphasia- Insomnia- Does not keep up with personal hygiene – presents as “forgetting to brush teeth or eat”- Mood and personality changes occur later <p>Diagnosis:</p> <ul style="list-style-type: none">- MRI brain – to rule out other pathology- Mini-mental state exam – not for diagnosis but to assess the severity of cognitive dysfunction and also to determine the start and cessation of pharmacological therapy <p>Treatment:</p> <ul style="list-style-type: none">- Multidisciplinary management- Trial of acetylcholinesterase inhibitor or NMDA receptor antagonist
113.	<p>A 43 year old chronic alcoholic stopped drinking alcohol for the last 3 days. He is anxious, has tremors and is now having hallucinations. His heart rate is 106 beats/minute. What is the SINGLE most appropriate treatment?</p> <p>A. Olanzapine B. Diazepam C. Acamprosate D. Disulfiram E. Thiamine</p> <p>Benzodiazepines are the recommended drugs for alcohol detoxification. They have a slower onset of action and therefore are less likely to lead to abuse. A reducing dose of chlordiazepoxide is commonly used. Diazepam is an alternative.</p> <p>In this particular case, he has hallucinations which are a sign that he is having not just an acute alcohol withdrawal but moving on to delirium tremens.</p> <p>Patients with marked agitation or hallucinations and those at risk of delirium tremens (characterised by delirium, hallucinations, coarse tremor, and disorientation) may be prescribed antipsychotic drugs, such as haloperidol or olanzapine, as adjunctive therapy to benzodiazepines. But note that antipsychotics should not be used alone because they do not treat alcohol withdrawal and may lower the seizure threshold.</p> <p>Acute Alcohol Withdrawal</p> <p>Patients often present with anxiety, tremor, hyperactivity, sweating, nausea and retching, tachycardia, hypertension and mild pyrexia. Symptoms peak at at 12-30 hours and subside by 48 hours</p> <p>Medications used in alcoholics</p>



	<ul style="list-style-type: none">• Benzodiazepines for acute withdrawal (NHS commonly uses Chlordiazepoxide) Chlordiazepoxide is used as sedation• IV Pabrinex (Thiamine) (vitamin B1) is used to prevent Wernicke's encephalopathy which is a neuropsychiatric disorder caused by thiamine deficiency which is most commonly seen in alcoholics• Disulfiram: promotes abstinence - alcohol intake causes severe reaction due to inhibition of acetaldehyde dehydrogenase. Patients should be aware that even small amounts of alcohol (e.g. In perfumes, foods, mouthwashes) can produce severe symptoms. <i>Example of when to use disulfiram in PLAB: 40 year old man wants medication to serve as a deterrent when he takes alcohol</i>• Acamprosate: reduces craving, improves abstinence in placebo controlled trials. <i>Example of when to use disulfiram in PLAB: 40 year old man wants some medication to help him reduce cravings</i>
114.	<p>A 42 year old female had a sudden onset of severe headache and vomiting. She took paracetamol and an hour later she collapsed. Her medical history is significant for Ehlers-Danlos syndrome. What is the SINGLE most likely diagnosis?</p> <p>A. Subarachnoid haemorrhage B. Viral encephalitis C. Meningitis D. Anaphylaxis E. Epidural haematoma</p> <p>Sudden onset of severe headache, vomiting then collapsing are more suggestive of subarachnoid haemorrhage. This is also supported by the medical history of Ehlers-Danlos syndrome.</p> <p>Occasionally the stem would include signs of meningeal irritation. This includes neck stiffness and photophobia. Patients often describe the headaches as “the worst headache of my life”.</p>
115.	<p>A 66 year old patient wakes up with slurred speech and right sided weakness. He is brought to the hospital by his wife. A computed tomography was ordered and shows a cerebral infarction. What is the SINGLE most appropriate treatment to be given?</p> <p>A. Aspirin B. Alteplase C. Warfarin D. Streptokinase E. Dipyridamole</p> <p>The answer here is aspirin 300 mg.</p> <p>The history and examination are convincing for a stroke. Before any treatment can happen we need to exclude a haemorrhagic stroke with the help of imaging. This was done in this question which showed an ischaemic stroke.</p>



The other options are less likely to be the appropriate next course of action.

Alteplase → The window period to administer alteplase is 4.5 hours of onset of stroke symptoms. If we cannot be certain of this period, we cannot proceed to give alteplase. Firstly, there was no time given in the stem. Secondly, the patient woke up to symptoms of a stroke. The ischaemic event could have happen anytime during the night.

Warfarin → anticoagulants should not be started until brain imaging has excluded haemorrhage, and usually not until 14 days have passed from the onset of an ischaemic stroke

Streptokinase → Note that the NHS prefers alteplase over streptokinase. So streptokinase is almost never the right answer.

Statins → Statins need to be offered but this is not the most appropriate next course of action. There is no urgency in giving statins.

Dipyridamole → Can be given, but it is usually only given If clopidogrel is contraindicated or not tolerated. In such case we would give a combination of modified-release dipyridamole and low dose aspirin.

Stroke management

Summary of management of acute stroke:

- blood glucose, hydration, oxygen saturation and temperature should be maintained within normal limits
- aspirin 300mg orally or rectally should be given as soon as possible if a haemorrhagic stroke has been excluded
- Thrombolysis should only be given if it is administered within 4.5 hours of onset of stroke symptoms and haemorrhagic stroke has been excluded by imaging (Alteplase is currently recommended by NICE)

Post management stroke

- Aspirin 300 mg daily for 2 weeks is given immediately after an ischaemic stroke is confirmed by brain imaging.
- Clopidogrel 75 mg daily is then given long-term
- If clopidogrel is contraindicated or not tolerated, give a combination of modified-release dipyridamole and low dose aspirin.
- Ensure a statin has been offered.



116.	<p>A 42 year old man has increasing daytime sleepiness. He feels that his tiredness is affecting his work as he is unable to keep awake during meetings. He also complains of choking episodes during his sleep. On examination, his BMI is 36 kg/m², blood pressure is 150/70 mmHg, and respiratory exam was normal. What is the SINGLE most likely diagnosis?</p> <p>A. Idiopathic hypersomnia B. Narcolepsy C. Hyperventilation syndrome D. Obstructive sleep apnoea syndrome E. Rapid eye movement sleep behavior disorder</p> <p>Daytime sleepiness and obesity points the diagnosis of obstructive sleep apnoea syndrome. Choking episodes during sleep is also a suggestive feature of obstructive sleep apnoea syndrome.</p> <p>Obstructive sleep apnoea syndrome Presentation:</p> <ul style="list-style-type: none">- Middle aged to elderly male- Increased daytime sleepiness, fatigue, sleep disruption- Snoring loudly at night- Associated with hypertension, diabetes, obesity <p>Diagnosis:</p> <ul style="list-style-type: none">- Pulse oximetry, overnight study of breathing pattern (initial investigation)- Polysomnography (gold standard) <p>Treatment:</p> <ul style="list-style-type: none">- Conservative: weight loss and reduce alcohol consumption- Continuous positive airway pressure (CPAP)
117.	<p>A 73 year old female patient presents with right sided hemiplegia and aphasia. These symptoms resolved spontaneously in 6 hours. An ECG conducted in hospital revealed atrial fibrillation. What is the SINGLE best scoring method to assess her risk for future stroke?</p> <p>A. ABCD2 B. CHA₂DS₂-VASc C. Well's Score D. CURB-65 E. NYHA Score</p> <p>Knowing the contents of the ABCD2 and the CHA₂DS₂-VASc scoring system is not necessary for the PLAB 1 exam but knowing when to apply each scoring system is vital.</p> <p>ABCD2 score The ABCD2 score is to assess risk of future stroke in patients who have already suffered from a transient ischaemic attack (TIA) or suspected transient ischaemic attack.</p>



	<p>An example of use of a ABCD2 score is a patient presenting to A&E or a GP surgery with symptoms of a TIA. The ABCD2 score helps the physician decide on how to manage the patient. If the patient scored high on the ABCD2 score, the physician would refer the patient for specialist assessment within 24 hours of the onset of symptoms, give a statin such as simvastatin 40 mg, and give an antiplatelet drug if the patient is not already taking any anticoagulation medication.</p> <p>CHA2DS2-VASc score</p> <p>The CHA2DS2-VASc score is to assess the risk of future stroke in patients who have atrial fibrillation. This score is then used to determine whether or not treatment is required with anticoagulation therapy.</p> <p>Choosing ABCD2 or CHA2DS2-VASc</p> <p>You may have difficulty in choosing either ABCD2 or CHA2DS2-VASc as the answer but remember that in this case stem, this patient HAS ALREADY HAD A TIA. Whether or not the TIA was as a result of atrial fibrillation is not known. But we DO know that her primary concern is transient ischemic attack and second is atrial fibrillation therefore ABCD2 is the correct answer.</p> <p>Remember: ABCD2 = Risk of future stroke following TIA CHA2DS2-VASc = Risk of future stroke in patients with atrial fibrillation</p>
118.	<p>A 19 year old woman complains of episodic headaches preceded by fortification spectra. These episodes can sometimes last for 2-3 days. When these headaches occur, she prefers to be in a quiet, dark room. What is the SINGLE most appropriate management for the acute phase?</p> <p>A. Topiramate B. Aspirin C. Propranolol D. Gabapentin E. Domperidone</p> <p>The diagnosis here is migraines. This question is a helpful reminder that the mean age of onset of migraines is 19 years old. In PLAB, it is usually a young to middle-aged person who presents with migraines.</p> <p>It is highly unlikely that they would ask you to choose between an oral triptan, NSAID, aspirin, or paracetamol for the acute treatment of migraines. Although oxford clinical handbook does state that NSAIDS (e.g. ketoprofen 100mg, dispersible aspirin 900mg/6h) are good as there is less chance of developing medication misuse headache, and they have similar efficacy to oral 5HT agonists (triptans and ergot alkaloids), the NICE guidelines do not state which one of them would be used before the other. PLAB would have to adhere very closely to NICE guidelines thus any answer with oral triptan, NSAIDS, or aspirin for the acute treatment of migraines would be a correct answer.</p> <p>Migraine Presentation:</p>



	<ul style="list-style-type: none">- Young to middle-aged female or male (for PLAB 1)- Throbbing headache, localized to one side preceded by aura- +/- Nausea and vomiting- +/- Photophobia <p>Diagnosis:</p> <ul style="list-style-type: none">- Clinical diagnosis- fMRI – can check for physiological changes in the brain during a migraine, but not necessary (doesn't change management) <p>Acute Treatment: NICE CKS recommends: Combination therapy with an oral triptan and an NSAID, or an oral triptan and paracetamol. If monotherapy is preferred, offer an oral triptan, or NSAID, or aspirin, or paracetamol.</p> <p>Prevention: NICE CKS recommends: Topiramate or propranolol as first-line for prevention preventive treatment should be offered in addition to acute treatment.</p> <p>If both topiramate and propranolol are ineffective or are unsuitable, offer gabapentin or acupuncture</p>
119.	<p>A 45 year old man with terminal cancer who has recently completed his course of chemotherapy develops tingling and numbness of the fingertips of both arms. He describes a constant mild burning discomfort in his hands and feet. Occasionally, he experiences a sharp, shooting, and electric-shock-like pain in his feet. What is the SINGLE most likely cause of his symptoms?</p> <p>A. Bone metastasis to cervical vertebrae B. Chemotherapy induced peripheral neuropathy C. Hyponatraemia D. Hypocalcaemia E. Hypomagnesemia</p> <p>Chemotherapy drugs such as vincristine are known for the side effects of peripheral neuropathy due to neurotoxicity. Patients with this side effects would present with peripheral paraesthesia which is seen as numbness or tingling. Chemotherapy induced peripheral neuropathy is typically characterized by a glove-and-stocking distribution in the hands and feet with sensory loss or hypersensitivity, and in some cases motor and autonomic dysfunction.</p>



120.	<p>A 45 year old man has tremors in both his hands. The tremors are absent at rest but present when arms are held outstretched and persist on movement. Movements such as writing are affected by his tremor. The tremor is seen to be worse when he is tired or stressed. On examination, the tremor continues to be present even when patient is distracted. What is the SINGLE most likely diagnosis?</p> <p>A. Parkinsonian tremor B. Essential tremor C. Cerebellar disease D. Psychogenic tremor E. Stroke</p> <p>Know the difference between psychogenic tremors and essential tremors. The given stem are of clinical features of an essential tremor. In psychogenic tremors, there is often an abrupt onset, spontaneous remission, and the characteristic of the tremor changes when the patient is distracted.</p> <p>Parkinsonian tremors usually would have the classical sign of 'pill rolling' in combination with rigidity and bradykinesia which is absent in this stem.</p> <p>Cerebellar disease could present with intention tremors which is not seen in this stem. Intentional tremors occur during voluntary active movements of an upper body. The tremor would worsen as goal-directed movement approaches its intended target. The stem would usually include overshooting or undershooting their target, a condition known as dysmetria. It is a form of ataxia. Example, a patient would find difficulty due to his tremor when asked to touch his nose and then the examiner's fingers.</p> <p>Essential tremor symptoms</p> <ul style="list-style-type: none">• Distal symmetrical postural tremor of the upper limbs• Initially transient. May progress to become persistent.• Amplitude of tremor may depend on physiological or emotional state• May be seen to improve following alcohol ingestion• Not seen at rest <p>Management</p> <ul style="list-style-type: none">• Propranolol is first line
121.	<p>A 52 year old man has incoherent speech. He is aware of his speech difficulties but finds difficulty in using the right words when speaking. He has no other symptoms apart from his speech issue. He has good comprehension. Which anatomical site is most likely to be affected?</p> <p>A. Broca's area B. Wernicke's area C. Midbrain D. Parietal lobe E. Brainstem</p>



	<p>Broca's Aphasia</p> <p>Broca's area is a region in the inferior frontal lobe of the dominant hemisphere responsible for speech production. Lesions in this area produce a non-fluent or expressive aphasia. Patients will typically exhibit slow and halting speech. However, their comprehension is not affected. Unlike Wernicke's aphasia, patients with Broca's aphasia are aware of their language difficulties.</p> <p>For example, a person with Broca's aphasia may say in a slow manner something like, "Bathe. Dog" meaning to say, "I bathe the dog today". You can see that the content of the information is correct, but the grammar and fluidity of the sentence is incorrect. They know what to say, they just cannot get it out.</p>
122.	<p>A 65 year old lady presents to the Accident and Emergency department with a 6 hour history of facial droop and weakness on her left side of her body. A CT scan was performed and ruled out a haemorrhagic stroke. She is allergic to Penicillin and takes Simvastatin and Amlodipine regularly. What is the SINGLE most appropriate medication to be prescribed long term for this patient?</p> <p>A. Alteplase B. Clopidogrel C. Dipyridamole D. Labetalol E. Aspirin</p> <p>The patient had an ischaemic stroke and the standard treatment would be Aspirin for 14 days, and then Clopidogrel long term. The question is asking for the long term treatment and therefore this would be Clopidogrel.</p> <p>Alteplase - for patients who are appropriate for thrombolysis therapy who presents within within 4.5 hours of onset of stroke symptoms, and intracranial haemorrhage has been excluded by imaging techniques</p> <p>Dipyridamole - Modified-release dipyridamole alone is recommended as an option to prevent occlusive vascular events for people who have had an ischaemic stroke only if aspirin and clopidogrel are contraindicated or not tolerated.</p> <p>Aspirin is started as a standard therapy for confirmed ischaemic stroke and is continued until 2 weeks, at which time definitive long-term antithrombotic treatment should be initiated. Aspirin is only recommended long term for patients intolerant to clopidogrel.</p>
123.	<p>A 38 year old heroin addict was involved in a car crash and is now paraplegic. He was agitated and cried everyday during the first two weeks after the accident while in the hospital. On questioning, he is not able to remember the accident and refuses to talk about it. What is the SINGLE most likely diagnosis?</p> <p>A. Post traumatic stress disorder B. Severe depression</p>



	<p>C. Bipolar disorder D. Organic brain injury E. Borderline personality</p> <p>The likely diagnosis here is organic brain damage as he is unable to remember the accident. One can easily exclude post traumatic stress disorder with that history as patients with PTSD are quite the opposite and would remember the experience and have flashbacks and nightmares about it.</p> <p>It is normal to have an amount of sadness after a major accident which involves brain injury. This differs from severe depression, as symptoms of severe depression interferes with normal function. If the severity of sadness persisted and there was a degree of functional impairment and disability associated with low mood, then we would be able to say that this is severe depression.</p> <p>Symptoms of an organic brain injury may include confusion, impairment of memory, agitation which can be seen in this stem.</p>
124.	<p>A 33 year old man presents with speech difficulties. He has a an irregular breakdown of articulation. On examination, nystagmus is seen. Which anatomical site is most likely to be affected?</p> <p>A. Midbrain B. Pons C. Cerebellum D. Cerebrum E. Vestibule cochlear nerve</p> <p>It is quite unclear what sort of speech difficulties this patient has. But with a combination with nystagmus, one can assume that this patient is having cerebellar dysarthria (also known as ataxic dysarthria). Cerebellar dysarthria is an acquired neurological and sensorimotor speech deficit caused by damage to the superior cerebellum and the superior cerebellar peduncle. If, for example, there is damage to the left cerebellar hemisphere in a right handed person, ataxic dysarthria could develop. Of all the individual dysarthria types, it most clearly reflects a breakdown in timing and coordination.</p>
125.	<p>A 43 year old man presents with neck stiffness, headache and vomiting. The headache is severe, persistent and on the left side. He also has ear pain and discharge coming from his left ear. On examination, he has weakness of the right hand and leg. He has a temperature of 38.5°C. What is the SINGLE most likely diagnosis?</p> <p>A. Viral meningitis B. Bacterial meningitis C. Mycotic aneurysm D. Cerebral abscess E. Cerebral tumour</p>



	<p>Cerebral abscess</p> <p>Cerebral abscess may show many of the same features of a brain tumors as they both are space-occupying lesions. The major difference is that cerebral abscess has features of a fever and an obvious source of infection nearby such as otitis media or mastoiditis.</p> <p>Presentation</p> <ul style="list-style-type: none">• Headache → is the most common symptom and it is often on the same side as the abscess• Fever• Changes in mental state (drowsiness, confusion)• Focal neurological deficits• Grand mal seizures• Nausea and vomiting• Neck stiffness• Papilloedema → this is due to cerebral oedema <p>Investigations</p> <ul style="list-style-type: none">• CT scanning is the investigation of choice. Cerebral abscesses appear as a radiolucent space-occupying lesion. <p>Note that in HIV-positive patients, majority of brain lesions will be either be due to toxoplasmosis or lymphoma.</p>
126.	<p>A 68 year old man had a fall down the stairs. His daughter has brought him into the emergency department where he was having lucid intervals. Shortly after admission he becomes unconscious. What is the SINGLE most likely vessel affected?</p> <p>A. Basilar artery B. Bridging veins C. Vertebral artery D. Diploic vein E. Middle meningeal artery</p> <p>Lucid intervals followed by unconsciousness is typical for an epidural haemorrhage of which the middle meningeal artery is involved.</p> <p>Extradural (epidural) haematoma</p> <p>Often associated with skull fracture and middle meningeal artery injury. Involves arterial blood.</p> <p>Features</p> <ul style="list-style-type: none">• Features of raised intracranial pressure• Patients may exhibit a lucid interval (note the lucid intervals as it is very commonly seen in PLAB)



	<p>Management</p> <p>Surgical procedure: burr hole over pterion (to ensure that further haemorrhage escapes instead of expanding the clot further) followed by craniotomy and evacuation of the haematoma.</p>
127.	<p>A 42 year old lady presents with a history of double vision, ptosis and facial numbness. Which anatomical site is the most likely to be affected?</p> <p>A. Cerebral cortex B. Trigeminal nerve C. Oculomotor nerve D. Brainstem E. Basal ganglia</p> <p>A brainstem lesion makes the most sense here as the oculomotor nerve arises from the anterior aspect of mesencephalon (midbrain) while trigeminal nerve arises from pons. The involvement of oculomotor nerve could explain the double vision and the involvement of the trigeminal nerve explains the facial numbness.</p>
128.	<p>A 43 year old smoker presents with double vision. She tires easily, has difficulty climbing stairs, and reaching for items on shelves. On examination, reflexes are absent but elicited after exercise. The power in shoulder abduction after repeated testing is 4+/5 from 3/5. What is the SINGLE most likely pathology associated with this patient's diagnosis?</p> <p>A. Thyrotoxicosis B. Thrombotic event C. Diabetes D. Cerebral vascular event E. Lung cancer</p> <p>This is a diagnosis of Lambert-Eaton syndrome. A key difference from myasthenia gravis is that on examination the patient has increased strength on repetition of power. It is also a paraneoplastic disorder closely associated with small cell lung cancer. Because Lambert-Eaton and myasthenia gravis present similarly, the case stem usually would provide you with an investigation or examination clue, including autoantibodies and/or EMG results. Note that thyrotoxicosis is associated with myasthenia gravis not Lambert-Eaton.</p> <p>Lambert-Eaton syndrome</p> <p>Presentation:</p> <ul style="list-style-type: none">- Young, female patients; mostly autoimmune- Proximal weakness at the pelvic girdle / shoulder girdle- Weakness improves with exercise as well as reflexes- Cranial nerve involvement: dysphagia, dysarthria, ptosis, diplopia- Associated with small cell lung cancer <p>Diagnosis:</p>



	<ul style="list-style-type: none">- EMG: decreased amplitude in CMAP after single supramaximal stimulus but increases after exercise- Edrophonium test: may be positive but not as prominent as in myasthenia gravis- Look for tumor: CT/MRI of chest, abdomen, pelvis + tumor markers <p>Treatment:</p> <ul style="list-style-type: none">- Treat tumor – first line- Consider methylprednisolone and IV immunoglobulin
129.	<p>A 44 year old woman has a two week history of electric shock-like stabbing facial pain starting from her left jaw and radiates towards her forehead. The pain is unilateral and it is described as very severe and coming in spasms. Her corneal reflexes are found to be normal. What is the SINGLE most likely diagnosis?</p> <p>A. Trigeminal neuralgia B. Temporomandibular joint disorder C. Atypical facial pain D. Giant cell arteritis (GCA) E. Herpes zoster ophthalmicus</p> <p>Electric shock-like, sharp, shooting, stabbing are features usually used to describe trigeminal neuralgia. The onset of pain is episodic and sudden, lasting a few seconds to minutes and stopping suddenly, with many attacks a day.</p> <p>Patients with classical trigeminal neuralgia have a normal neurologic examination. Facial sensation, masseter bulk and strength, and corneal reflexes should be intact. A loss of corneal reflex excludes the diagnosis of idiopathic trigeminal neuralgia and prompt physicians to consider other causes of patient's symptoms, unless a previous trigeminal nerve section procedure has been performed. Thankfully the corneal reflex in this stem is intact which makes the the choice of answer more clear.</p> <p>Trigeminal neuralgia</p> <p>Presentation</p> <ul style="list-style-type: none">• Unilateral, shooting or stabbing electric shock-like facial pain• Pain exacerbated with movement or touch especially in the jaw (CN V, 2nd and 3rd branch distribution)• Abrupt in onset and termination <p>Diagnosis</p> <ul style="list-style-type: none">• Clinical diagnosis• MRI is routinely done to rule out other pathology (i.e. schwannoma, meningioma) <p>Treatment:</p> <ul style="list-style-type: none">• Medication then surgery• Carbamazepine > lamotrigine / phenytoin / gabapentin• Surgical: microvascular decompression



130.	<p>A 25 year old woman presents with a severe headache. She had migraines for the last 14 years but has been symptom free for the last year. There are no other neurological signs. She has no other medical history of note. Her observations are stable. What is the SINGLE most appropriate investigation for this woman?</p> <p>A. Computed tomography of head B. Lumbar puncture C. Ophthalmoscope D. Magnetic resonance imaging of head E. No further investigation required</p> <p>This young lady is likely having a recurrence of her migraine. It is not stated in the stem whether the headache is of a similar type to her previous migraines but one can assume given there are no neurological signs and no mention of neck stiffness or photophobia. Since this is likely a migraine, no further investigations are required. If there were signs of neck stiffness, photophobia or if the headache was described as the worse headache of her life, obtaining a CT scan of the head would be the choice to rule out a subarachnoid haemorrhage.</p>
131.	<p>A 71 year old lady has a history of a fall 3 days ago with an injury to the head. She is increasingly drowsy and has recently become confused and disoriented. What is the SINGLE most likely vessel to be involved?</p> <p>A. Diploic vein B. Cerebral vein C. Basal vein D. Middle meningeal vein E. Middle meningeal artery</p> <p>The clinical symptoms match those of a chronic subdural haematoma. This would be caused by a rupture of a bridging vein. Among the options given, cerebral vein would be the most likely.</p> <p>Chronic subdural haematoma occurs in the very old or in severe alcoholics. A shrunken brain is rattled around the head by minor trauma, tearing venous sinuses. Over several days or weeks, mental function deteriorates as haematoma forms. CT scan is diagnostic, and surgical evacuation provides dramatic cure.</p> <p>Remember in PLAB, Chronic subdural haematoma usually presents as an elderly, on anticoag or an alcoholic who may have history of fall. Slow onset of symptoms compared to epidural haematoma.</p>



132. 54 year old patient is seen at the clinic for muscle weakness. His muscle weakness initially started at the level of his legs but now it is affecting his arms too. On examination, he has loss of tendon reflexes and decreased muscle strength. What is the SINGLE most likely mechanism of this weakness?

- A. Amyloid deposition in neurons
- B. Vasculitis
- C. Reduction in the number of nicotinic acetylcholine at the postsynaptic muscle membrane
- D. Autoimmune degeneration of myelin sheaths of peripheral neurons**
- E. Compression of spinal nerve

Guillain-Barré syndrome

- Is a disorder causing demyelination characterised by weakness, paresthesia and hyporeflexia
- Usually precedes an infection, usually respiratory or gastrointestinal tract. This association with preceding infection suggests that antibodies to the infectious organism also attack antigens in peripheral nerve tissue.

In the stem, there would usually be a history of gastrointestinal or respiratory infection from anywhere between a few days to 3 weeks prior to the onset of weakness.

Presentation:

- Weakness
 - Presents with an ascending pattern of progressive symmetrical weakness, starting in the lower extremities
 - Reaches a level of maximum severity two weeks after initial onset of symptoms
 - Facial weakness, dysphasia or dysarthria
 - In severe cases, muscle weakness may lead to respiratory failure.
- Pain
 - Neuropathic pain, particularly in the legs
- Reflexes
 - Reduced or absent
- Sensory
 - Paresthesia and sensory loss, starting in the lower extremities

133. An 8 year old boy developed a seizure first affecting his right arm. The seizure lasted for several minutes. He was unconscious throughout the seizure and has no recollection of the events that occurred leading to his seizure. A computed tomography scan of his head was organised after the seizure and has been reported as having a lesion on the left cerebral hemisphere. What is the SINGLE most likely reason for his seizure?

- A. Epilepsy
- B. Space occupying lesion**
- C. Dementia
- D. Huntington's chorea
- E. Intracranial hypertension



This boy has just had a complex partial seizure. The term “partial” (or focal) seizure means that the electrical activity was limited to a part of one cerebral hemisphere. The term “complex” seizure means there was loss of awareness.

The seizure is likely caused by a the lesion seen on the CT scan that is occupying space.

Less likely answers

Epilepsy - is incorrect as the termed epilepsy would require at least two unprovoked seizures occurring more than 24 hours apart for the definition to fall into place.

Dementia - is incorrect as dementia is a brain disorder causing memory loss and decline in cognition. It occurs in the elderly and does not cause seizures.

Huntington’s chorea - is also incorrect. Firstly, symptoms of Huntington’s disease become noticeable between ages of 35 and 44 years old. This boy is too young to develop symptoms of Huntington’s disease. Secondly, Huntington’s chorea is characterised by jerky, random and uncontrolled movements. During these movements, there is no loss of consciousness.

Raised intracranial pressure (intracranial hypertension) - is also not entirely wrong however it should be picked only if there was no option for space occupying lesion. Raised intracranial pressure does occur when there is a space occupying lesion. The symptoms of raised intracranial pressure include headaches, double vision, drowsy, irritable and the occasional seizures however because the term intracranial hypertension is such a broad term which also incorporates other aetiologies such as brain trauma, meningitis, aneurysm rupture and others, it would be better to pick a more specific term like space occupying lesion as the cause of the seizure in this question.



SAMPLE



OB/GYN

SAMPLE



1.	<p>A 51 year old woman presents with a 9 month history of prolonged, slightly irregular menstrual periods. On physical examination, a normal size uterus with no adnexal masses is felt. What is the SINGLE most likely diagnosis?</p> <p>A. Menopause B. Perimenopause C. Ovarian carcinoma D. Cervical carcinoma E. Premature ovarian failure</p> <p>All women will go through menopause and the average age is 52 years.</p> <p>For this question we have to go back to definitions of menopause and perimenopause.</p> <p>Menopause is the permanent cessation of menstruation. It is recognized to have occurred after 12 consecutive months of amenorrhoea for which no other obvious pathological or physiological cause is present.</p> <p>Peri-menopause includes the period beginning with the first clinical, biological, and endocrinological features of the approaching menopause, such as vasomotor symptoms and menstrual irregularity.</p> <p>As the above question presents with irregular menstruations and not absent menstruations for a period of 12 months, perimenopause is to correct answer</p>
2.	<p>A 39 year old woman has had no menstrual periods for the last 11 months. Prior to that she had regular menstrual cycles. She recently has hot flashes and night sweats. She is also experiencing feelings of anger and helplessness. FSH was done and it was raised on two separate occasions. What is the SINGLE most appropriate management?</p> <p>A. Hormone replacement therapy (HRT) for 5 years B. Hormone replacement therapy (HRT) until age 51 C. Tricyclic antidepressants D. Levothyroxine E. Progestogen-only pill (POP)</p> <p>Premature ovarian failure</p> <p>Premature ovarian failure (Premature ovarian insufficiency) is defined as the onset of menopausal symptoms and elevated gonadotropin levels before the age of 40 years. It occurs in around 1 in 100 women.</p> <p>Causes</p> <ul style="list-style-type: none">• Idiopathic - the most common cause• Chemotherapy (this can be temporary, as recovery of ovarian function can occur, especially in younger women)• Radiation



- Autoimmune disease
- Bilateral oophorectomy or surgical menopause

Presentation

1. The most common presentation is amenorrhoea or oligomenorrhoea (which may not necessarily be accompanied by hot flushes)
2. Infertility
3. Other features are similar to those of the normal climacteric symptoms:
 - Hot flashes
 - Night sweats
 - Irritability
 - Poor concentration
 - Decreased sex drive
 - Dyspareunia
 - Vaginal dryness

Tests:

FSH levels:

- FSH test should be undertaken in women aged under 40 years in whom menopause is suspected
- Two raised levels (more than 40 IU/L) taken at least four weeks apart are diagnostic

Serum follicle-stimulating hormone (FSH) measurement alone can be used to diagnose the disease. The anterior pituitary secretes FSH and LH at high levels due to the dysfunction of the ovaries and consequent low estrogen levels.

Management:

- hormone replacement therapy (HRT) until at least the average age of the menopause (51 years)

(The average age of the menopause in women in the UK is 51 years)

Important Notes:

Do NOT use early menopause and premature ovarian failure interchangeably

- The term early menopause is used for those women who go through their menopause between 40-45 years

Do NOT use premature menopause and premature ovarian failure interchangeably

- Premature ovarian failure is sometimes referred to as premature menopause, but the two conditions aren't exactly the same. Women with premature ovarian failure may have irregular or occasional periods for years and may even become pregnant. Women with premature menopause stop having periods and can't become pregnant.



3.	<p>A 45 year old waitress complains of pelvic pain which worsens pre-menstrually. The pelvic pain is usually worse when standing and has been present for the last one year. She also complains of post-coital ache that is felt deep within the vagina. There was no discharge on vaginal examination. A diagnostic laparoscopy was performed which did not show any abnormalities. What is the SINGLE most likely diagnosis?</p> <p>A. Pelvic inflammatory disease (PID) B. Endometriosis C. Pelvic congestion syndrome D. Adenomyosis E. Premature ovarian failure</p> <p>Non-organic dyspareunia + with symptoms similar to premenstrual syndrome + aggravated by standing = Pelvic congestion syndrome</p> <p>Pelvic congestion syndrome is a chronic medical condition in women caused by varicose veins in the lower abdomen. The condition causes chronic pain, often manifesting as a constant dull ache, which can be aggravated by standing. It is a diagnosis of exclusion where other organic causes of dyspareunia have been excluded. It may present as pain during intercourse that may be deep within the vagina with symptoms similar to premenstrual syndrome. It is caused by accumulation of blood during arousal without occurrence of orgasm. Achieving orgasm (by intercourse, masturbation, or use of a vibrator) may help to alleviate this congestion.</p>
4.	<p>A 53 year old woman complains of dyspareunia and vaginal dryness. On a speculum examination, an atrophic vaginitis is seen. Her last menstrual period was one year ago. What is the SINGLE most appropriate management?</p> <p>A. Hormone replacement therapy B. Combined oral contraceptive pills C. Oestrogen cream D. Testosterone gel E. Primrose oil</p> <p>Topical oestrogen is advisable as first-line for women with vaginal atrophy.</p> <p>A vaginal oestrogen cream or pessary would be appropriate here since the patient only had symptoms of vaginal dryness without the other symptoms of menopause like hot flushes.</p> <p>If she had vasomotor symptoms such as flushing, including sleep, mood disturbance and headaches, then a systemic hormone replacement therapy like the oestrogen plus progestogen patch would be a better pick.</p>



5. A 23 year old woman has painless vaginal bleeding at 36 weeks pregnancy. She has no uterine contractions. Fetal heart tones are regular at 140 beats/min. Examination of the uterus shows the fetus to be in transverse lie. She has a pulse of 90 beats/minute, a blood pressure of 95/60 mmHg and a respiratory rate of 19 breaths/minute. What is the SINGLE most appropriate next action?

A. Transvaginal US

B. Abdominal US

C. Urine culture and sensitivity

D. Reassurance

E. Admit, observe and repeat CTG in 30 minutes

Placenta praevia

Placenta praevia describes a placenta lying wholly or partly in the lower uterine segment. This is common early in the pregnancy, but is most often not associated with bleeding.

The key clinical feature is painless bleeding after 24 weeks of gestation.

Risk factors

- previous placenta praevia
- multiple pregnancies

Note: 5% will have low-lying placenta when scanned at 16-20 weeks gestation incidence at delivery is only 0.5%, therefore most placentas rise away from cervix

Clinical features

- Painless vaginal bleed
- uterus not tender
- lie and presentation may be abnormal
- fetal heart usually normal

Note: the painless late-pregnancy bleeding may occur during rest or activity, suddenly and without warning. It may be preceded by trauma, coitus, or pelvic examination.

Diagnosis

This is based on the presence of painless late-trimester vaginal bleeding with an obstetric ultrasound showing placental implantation over the lower uterine segment.

A transvaginal ultrasound is preferred over abdominal ultrasound for detection of placenta praevia.



6.	<p>A 27 year old lady has had an uncomplicated pregnancy so far. She is now 40 weeks gestation. She came to the hospital 2 hours ago after her waters broke. She has regular and painful uterine contractions. PV examination reveals a 4 cm dilated cervix. Her vital signs are normal. What stage of labour is she in?</p> <p>A. First stage B. Second stage C. Third stage D. Fourth stage E. Latent phase</p> <p>Labour may be divided into three stages</p> <ul style="list-style-type: none">• stage 1: from the onset of true labour to when the cervix is fully dilated. It is divided into a latent and an active phase. Latent phase → begins with onset of regular contractions and ends with the acceleration of cervical dilation. Active phase → begins with cervical dilation acceleration, usually at 3-4 cm of dilation, ending with complete cervical dilation.• stage 2: from full dilation to delivery of the fetus• stage 3: from delivery of fetus to when the placenta and membranes have been completely delivered <p>Signs of labour include</p> <ul style="list-style-type: none">• regular and painful uterine contractions• a show (shedding of mucous plug)• rupture of the membranes (not always)• shortening and dilation of the cervix
7.	<p>A 22 year old woman is brought into A&E by her husband with severe abdominal cramping. She is haemodynamically unstable and her abdomen is very tender. Serum human chorionic gonadotropin (hCG) is 1400 IU/litre. A transvaginal ultrasound shows an empty uterine cavity with a small adnexal mass. No fetal heart activity was noted. What is the SINGLE most appropriate next course of action?</p> <p>(A serum hCG above 25 IU/litre is considered positive for pregnancy)</p> <p>A. Laparotomy B. Laparoscopy C. Admit and await events D. CT abdomen E. Methotrexate</p> <p>It is clear here that she has an ectopic pregnancy.</p> <p>Laparotomy would be the choice here as she is clearly haemodynamically unstable. An open approach is quicker than a laparoscopic approach.</p>



	<p>If she was haemodynamically stable, a laparoscopic approach to the surgical management of tubal pregnancy would be preferred as this has less post surgical complications and reduced length of hospital stay.</p> <p>Methotrexate would be first line for an ectopic pregnancy if she was not in significant pain. Although systemic methotrexate is first line, it can only be used if it contains all the criteria below:</p> <ul style="list-style-type: none">• Not in significant pain• Adnexal mass smaller than 35mm with no fetal heart visible• Serum hCG less than 1500 IU/litre• Able to return for follow-up <p>It is unlikely that the examiners for PLAB expect you to know these criteria thus methotrexate is unlikely to be the answer in PLAB.</p> <p>Ectopic pregnancy</p> <p>Defined by the implantation of a fertilized ovum outside the uterus</p> <p>Clinical features</p> <ul style="list-style-type: none">• lower abdominal pain: typically the first symptom.• vaginal bleeding: usually less than a normal period• history of recent amenorrhoea: typically 6-8 weeks from start of last period• peritoneal bleeding can cause shoulder tip pain <p>Examination findings</p> <ul style="list-style-type: none">• abdominal tenderness• cervical excitation (also known as cervical motion tenderness)• adnexal mass may be noticed <p>Management:</p> <ul style="list-style-type: none">• A laparoscopic approach to the surgical management of tubal pregnancy, in the haemodynamically stable patient, is preferable to an open approach• Management of tubal pregnancy in the presence of haemodynamic instability should be by the most expedient method. In most cases this will be laparotomy.
8.	<p>A 33 year old woman has vaginal discharge and bleeding. An endocervical swab was taken which tested positive for Chlamydia. What is the SINGLE most appropriate antibiotic to give?</p> <p>A. Erythromycin B. Ciprofloxacin C. Metronidazole D. Cefixime E. Doxycycline</p>



	<p>Cervicitis management</p> <p>If just cervicitis (Chlamydia)</p> <ul style="list-style-type: none">Azithromycin 1g single dose (OR doxycycline 100mg bd for 7 days) (both have similar efficacy of more than 95%) <p><i>Note that The 2009 SIGN guidelines suggest azithromycin should be used first-line due to potentially poor compliance with a 7 day course of doxycycline</i></p> <p>If just cervicitis (Neisseria gonorrhoeae)</p> <ul style="list-style-type: none">Azithromycin 1g PO and ceftriaxone 500mg IM <p><i>It is important to note the differences between acute PID and just cervicitis as the management is different</i></p>
9.	<p>A 24 year old lady presents with lower abdominal pain for the last 3 months, dysuria, dyspareunia and vaginal discharge. Urine HCG is negative. She has no significant past medical history. What is the SINGLE most appropriate next step in management?</p> <p>A. Laparoscopy B. High vaginal swab C. Hysteroscopy D. Laparotomy E. Ultrasound</p> <p>Women of her age group (<25 years old) are of greater risk for pelvic inflammatory disease as they are more sexually active during this period. A high vaginal swab is the first test to do to help diagnose PID.</p> <p>Pelvic inflammatory disease (PID) Pelvic inflammatory disease (PID) is a term used to describe infection and inflammation of the female pelvic organs including the uterus, fallopian tubes, ovaries and the surrounding peritoneum. Most commonly caused by ascending infection from the endocervix.</p> <p>Causative organisms</p> <ul style="list-style-type: none">Chlamydia trachomatis - the most common causeNeisseria gonorrhoeae <p>Risk factors for PID</p> <ul style="list-style-type: none">Age <25Previous STIsNew sexual partner/multiple sexual partnersUterine instrumentation such as surgical termination of pregnancyIntrauterine contraceptive devicesPost-partum endometritis

**Features**

- lower abdominal pain
- fever
- deep dyspareunia
- dysuria and menstrual irregularities may occur
- vaginal or cervical discharge
- cervical excitation

Investigation

- screen for Chlamydia and Gonorrhoea

Management

- There are many combinations of antibiotics to treat PID. It is unlikely that the PLAB test would ask you the management of PID. PLAB questions may ask you for the management of cervicitis (but unlikely PID). Remember, cervicitis is not the same as PID.

This is one of the combination examples for treatment of PID:

Outpatients: Ceftriaxone 500 mg as a single intramuscular dose, followed by oral doxycycline 100 mg twice daily plus oral metronidazole 400 mg twice daily, both for 14 days.

Note the differences between acute PID and just cervicitis.

If just cervicitis (Chlamydia)

- Azithromycin 1g single dose (OR doxycycline 100mg bd for 7 days) (both have similar efficacy of more than 95%)

If just cervicitis (Neisseria gonorrhoeae)

- Azithromycin 1g PO and ceftriaxone 500mg IM
- RCOG guidelines suggest that in mild cases of PID intrauterine contraceptive devices may be left in. The more recent BASHH guidelines suggest that the evidence is limited but that 'Removal of the IUD should be considered and may be associated with better short term clinical outcomes'

Complications

- infertility - the risk may be as high as 10-20% after a single episode
- chronic pelvic pain
- ectopic pregnancy



10. A 33 year old woman has vaginal spotting 2 days ago that is painless. She is worried of cervical cancer. She is currently on combined oral contraceptives and had a cervical smear last year which was reported as normal. Cervical ectropion is diagnosed on examination. There was no bleeding from the cervix on touch. What is the SINGLE most appropriate next step?

- A. Transvaginal ultrasound
- B. Cervical smear
- C. Punch biopsy
- D. Reassurance**
- E. Colposcopy

There is no screening test needed for cervical ectropion as cervical ectropion is not linked to the development of cervical cancer or any other condition that causes cancer. Treatment can be offered if the cervical ectropion is causing problems such as bleeding or pain during or after sex. However in this case, the cervix is not bleeding on touch thus no treatment is needed.

Cervical ectropion

- This occurs when the columnar epithelium of the endocervix is displayed beyond the os. The stratified squamous epithelium that normally lines the vaginal part of the cervix (ectocervix) is replaced by columnar epithelium, which has migrated from the endocervix.
 - The cervix enlarges under the influence of oestrogen and as a result the endocervical canal is everted. Exposure of high levels of oestrogen usually occurs at certain times (e.g. puberty, in pregnancy or women on COCP)
 - It is seen on examination as a red ring around the os and is so common as to be regarded as normal
 - It is generally an asymptomatic condition but patients occasionally present with bleeding or excessive discharge
 - The discharge if present is usually clear, watery in consistency and without odour
 - Once a normal cervical smear has been confirmed, it is actively managed only if there are symptoms.
 - After stopping any oestrogen-containing contraceptive, treatment options include diathermy, or cryotherapy



11.	<p>A 30 year old woman with suspected pelvic inflammatory disease has worsening of her symptoms of lower abdominal pain despite being treated with oral metronidazole and ofloxacin for 14 days. She has a temperature of 38.6°C, heart rate of 85 bpm, and a blood pressure of 110/80 mmHg. Her blood tests show:</p> <p>White cell count 18 x 10⁹/L CRP 160 mg/L</p> <p>What is the SINGLE most appropriate next course of action?</p> <p>A. Endocervical swab B. Pelvic ultrasound C. Laparotomy D. High vaginal swab E. Urine culture</p> <p>The possible diagnosis here is a pelvic abscess or tubo-ovarian abscess which are complications of PID. A high vaginal swab or endocervical swab can take days to return with results. As this is a A&E case, an ultrasound would be more appropriate as this would lead to a diagnosis.</p> <p>Ultrasound scan is the diagnostic imaging method of choice for acute pelvic pain in gynaecology. It can easily diagnose sequelae of PID (including pyosalpinx and tubo-ovarian abscess).</p> <p>Laparoscopy would be the next step after finding a mass on ultrasound.</p> <p>Urine culture has no part in the diagnosis of pelvic abscess</p>
12.	<p>A 27 year old lady presents with lower abdominal pain in the emergency department. 2 weeks ago, she came to the hospital with fever, suprapubic tenderness and vaginal discharge. Pelvic inflammatory disease (PID) was confirmed and she was sent home on oral doxycycline and oral metronidazole. She now presents with abdominal tenderness, temperature of 39.0°C, heart rate of 98 bpm, and a blood pressure of 130/85 mmHg. What is the SINGLE most appropriate next course of action?</p> <p>A. High vaginal swab B. Endocervical swab C. Pelvic ultrasound D. Abdominal X-ray E. Emergency laparoscopy</p> <p>The possible diagnosis here is a pelvic abscess or tubo-ovarian abscess which are complications of PID. A high vaginal swab or endocervical swab can take days to return with results. As this is a A&E case, an ultrasound would be more appropriate as this would lead to a diagnosis.</p>



	<p>Ultrasound scan is the diagnostic imaging method of choice for acute pelvic pain in gynaecology. It can easily diagnose sequelae of PID (including pyosalpinx and tubo-ovarian abscess).</p> <p>Laparoscopy would be the next step after finding a mass on ultrasound.</p> <p>Abdominal X-ray has no part in the diagnosis of a pelvic abscess.</p>
13.	<p>A 29 year old woman stopped taking combined oral contraceptive pills 13 months ago and she has been amenorrhoeic since then. Ultrasonography reveals normal ovaries with no signs of developing follicles.</p> <p>Her blood results show:</p> <p>Follicle-stimulating hormone (FSH) 8 IU/L Luteinizing Hormone (LH) 9 IU/L Prolactin 44 ng/mL Oestradiol 53 pmol/L</p> <p>What is the SINGLE most likely cause?</p> <p>A. Hypothalamic amenorrhoea B. Polycystic ovary syndrome C. Prolactinoma D. Post pill amenorrhoea E. Premature ovarian failure</p> <p>Post pill amenorrhoea</p> <p>Post pill amenorrhoea occurs when stopping oral contraceptives does not lead to a resumption of a normal menstrual cycle. It is described as the loss of menstrual periods for at least 6 months after stopping birth control pills.</p> <p>Post-pill amenorrhea is believed to be due to suppression of the pituitary gland by the birth control pills.</p> <p>Investigations</p> <p>Investigation are usually needed if menstrual cycles do not resume after 3 months post pill. It may be that the cause of amenorrhoea started whilst taking the contraceptives which induced an artificial cycle, masking the issue until they were stopped.</p> <ul style="list-style-type: none">• Ultrasonography will reveal ovaries with no signs of developing follicles and ovulation even after having stopped the pills for 6 months• Blood tests showing a low level of FSH, LH and oestrogen is usually sufficient to confirm the diagnosis



	<p>Treatment</p> <ul style="list-style-type: none">• The first line of treatment in case of post-pill amenorrhea is waiting for a spontaneous remission of the amenorrhea and a spontaneous occurrence of periods.• The time limit is usually six months. But if the woman is anxious to get her periods, active treatment may be started after waiting for only three months. The standard treatment of post-pill amenorrhea is by stimulating the pituitary to produce FSH and LH. This is done by the drug clomiphene citrate.
14.	<p>A 27 year old woman presents to the emergency department with a presenting complaint of lower abdominal pain. She has abdominal tenderness, temperature of 39.0°C, heart rate of 102 bpm, and a blood pressure of 130/85 mmHg. There is no vaginal discharge. What is the SINGLE most appropriate next course of action to make the diagnosis?</p> <p>A. High vaginal swab B. Endocervical swab C. Pelvic ultrasound D. Abdominal X-ray E. Emergency laparoscopy</p> <p>This is most probably pelvic inflammatory disease (PID). In order to guide treatment, a pelvic or abdominal ultrasound must be done. PID and cervicitis is an extremely high yield topic for PLAB 1.</p> <p>Pelvic inflammatory disease (PID) Pelvic inflammatory disease (PID) is a term used to describe infection and inflammation of the female pelvic organs including the uterus, fallopian tubes, ovaries and the surrounding peritoneum. Most commonly caused by ascending infection from the endocervix.</p> <p>Causative organisms</p> <ul style="list-style-type: none">• Chlamydia trachomatis - the most common cause• Neisseria gonorrhoeae <p>Risk factors for PID</p> <ul style="list-style-type: none">• Age < 25• Previous STIs• New sexual partner/multiple sexual partners• Uterine instrumentation such as surgical termination of pregnancy• Intrauterine contraceptive devices• Post-partum endometritis <p>Features</p> <ul style="list-style-type: none">• Lower abdominal pain• Fever• Deep dyspareunia• Dysuria and menstrual irregularities may occur• Vaginal or cervical discharge• Cervical excitation



	<p>Investigation</p> <ul style="list-style-type: none">• Screen for Chlamydia and Gonorrhoea <p>Management</p> <ul style="list-style-type: none">• There are many combinations of antibiotics to treat PID. It is unlikely that the PLAB test would ask you the management of PID. PLAB questions may ask you for the management of cervicitis (but unlikely PID). Remember, cervicitis is not the same as PID. <p>This is one of the combination examples for treatment of PID: Outpatients: Ceftriaxone 500 mg as a single intramuscular dose, followed by oral doxycycline 100 mg twice daily plus oral metronidazole 400 mg twice daily, both for 14 days.</p> <p>Note the differences between acute PID and just cervicitis. If just cervicitis (Chlamydia)<ul style="list-style-type: none">• Azithromycin 1g single dose (OR doxycycline 100mg bd for 7 days) (both have similar efficacy of more than 95%) If just cervicitis (Neisseria gonorrhoeae)<ul style="list-style-type: none">• Azithromycin 1g PO and ceftriaxone 500mg IM• RCOG guidelines suggest that in mild cases of PID intrauterine contraceptive devices may be left in. The more recent BASHH guidelines suggest that the evidence is limited but that 'Removal of the IUD should be considered and may be associated with better short term clinical outcomes'</p> <p>Complications</p> <ul style="list-style-type: none">• Infertility - the risk may be as high as 10-20% after a single episode• Chronic pelvic pain• Ectopic pregnancy
15.	<p>A 17 year old senior schoolgirl has prolonged irregular menstrual periods and menorrhagia. She is not sexually active. What is the SINGLE most appropriate management?</p> <p>A. Mefenamic acid B. Combined oral contraceptive pills C. Progestogen-only pill D. Copper intrauterine contraceptive device E. Levonorgestrel intra-uterine system</p> <p>Combined oral contraceptive pills suppresses production of gonadotrophins and is thought to reduce menstrual blood loss by up to 50%. It can improve dysmenorrhoea, lighten periods, regulate the cycle, improve premenstrual symptoms, COCP is very useful in adolescence. Also note that tranexamic acid is also effective.</p>



	<p>Although levonorgestrel intra-uterine system is first line for menorrhagia, it is difficult to fit in a nulliparous woman as her cervix has not yet been dilated before. However, there has been more and more research regarding the use of levonorgestrel intra-uterine systems in nulliparous woman and some clinicians would prefer levonorgestrel intra-uterine system to combined oral contraceptives. Their argument is that the levonorgestrel intra-uterine systems such as Jaydess® may be fitted more easily, as the frame is smaller and narrower compared to the Mirena® IUS.</p> <p>NSAIDS such as mefenamic acid may decrease menstrual blood loss by up to 20–30% and also significant decreases in dysmenorrhoea. But it will not regulate her periods whereas COCP will regulate an irregular cycle.</p>
16.	<p>A 36 year old primigravida who is 32 week has blood loss per vaginam followed by sudden constant abdominal pain for the last 3 hours. Her uterus is hard and she is in distress. Fetal distress is noted on CTG. Her blood pressure is 100/70 mmHg. What is the SINGLE most likely diagnosis?</p> <p>A. Placental abruption B. Placenta accreta C. Placenta praevia D. Vasa praevia E. Placenta percreta</p> <p>Placental abruption</p> <p>Placental abruption Is the premature separation of a normally placed placenta. It describes separation of a normally sited placenta from the uterine wall, resulting in maternal haemorrhage into the intervening space</p> <p>The cause is not known but associated factors include:</p> <ul style="list-style-type: none">• proteinuric hypertension• multiparity• maternal trauma• increasing maternal age <p>Clinical features</p> <ul style="list-style-type: none">• Pain is constant• Very tender and tense uterus• Bleeding, which may be accompanied by pain• fetal heart: may be distressed• If the bleeding is severe, the mother may show signs of hypovolaemic shock; however, young, fit, pregnant women can compensate very well until sudden and catastrophic decompensation occurs <p>Note: Severe abruption can result in haemorrhagic shock with acute tubular necrosis from profound hypotension, and DIC from release of tissue thromboplastin into the general circulation from the disrupted placenta.</p>



17.	<p>A 36 year old woman is planning to undergo laparoscopic tubal sterilisation. What is the risk of pregnancy after sterilisation by tubal ligation?</p> <p>Plab Lab Values</p> <p>A. 1:50 B. 1:200 C. 1:500 D. 1:1000 E. 1:5000</p> <p>Laparoscopic tubal occlusion</p> <p>Laparoscopic tubal occlusion using Filshie clips is now to mechanically occlude the Fallopian tubes is now the laparoscopic method of choice. The risk of pregnancy after sterilisation by tubal ligation is about 1:200, meaning that one in every 200 women who undergo sterilisation may get pregnant at some point after sterilisation.</p>
18.	<p>A 32 year old female who has had 3 previous miscarriages in the 1st trimester, all before 10 weeks gestation, now comes to the hospital with vaginal bleeding at 8 weeks. A transvaginal ultrasound reveals a viable fetus. What is the SINGLE most appropriate management?</p> <p>A. Aspirin B. Aspirin and heparin C. Progesterone supplements D. Cervical cerclage E. No treatment necessary</p> <p>The probable diagnosis here is antiphospholipid syndrome in which case aspirin plus heparin is indicated.</p> <p>What about cervical cerclage as the answer?</p> <p>Cervical weakness is a recognised cause of second-trimester miscarriage. The diagnosis is essentially a clinical one. The diagnosis is usually based on a history of second-trimester miscarriage preceded by spontaneous rupture of membranes or painless cervical dilatation.</p> <p>In this question, the 3 miscarriages happened during the first trimester and not the second trimester thus cervical cerclage would be a less likely option in this question.</p> <p>Cervical cerclage is associated with potential hazards related to the surgery and the risk of stimulating uterine contractions and hence should be considered only in women who are likely to benefit.</p> <p>The criteria for cervical cerclage is a strict and complicated one thus it is unlikely to be a correct answer during PLAB part 1. None the less, if they do give a history of painless dilatation during the previous miscarriages, cervical cerclage could be the option.</p>



	<p>To fully understand cervical cerclage you need to understand the 3 most basic types of cerclage.</p> <p>History-indicated cerclage → offered to women with three or more previous preterm births and/or second-trimester losses. A history-indicated suture is performed as a prophylactic measure in asymptomatic women and normally inserted electively at 12–14 weeks of gestation.</p> <p>Ultrasound-indicated cerclage → offered to women with a singleton pregnancy and a history of spontaneous mid-trimester loss or preterm birth attributable to cervical factors plus a cervical length of 25 mm or less which is detected by transvaginal scan before 24 weeks of gestation</p> <p>Rescue cerclage → Insertion of cerclage as a salvage measure in the case of premature cervical dilatation with exposed fetal membranes in the vagina. This may be discovered by ultrasound examination of the cervix or as a result of a speculum/physical examination performed for symptoms such as vaginal discharge, bleeding or ‘sensation of pressure’.</p> <p>Antiphospholipid syndrome</p> <p>Antiphospholipid syndrome is the most important treatable cause of recurrent miscarriage. Antiphospholipid syndrome refers to the association between antiphospholipid antibodies (lupus anticoagulant, anticardiolipin antibodies and anti-B2 glycoprotein-I antibodies) and adverse pregnancy outcome or vascular thrombosis.</p> <p>All women with recurrent first-trimester miscarriage and all women with one or more second-trimester miscarriage should be screened before pregnancy for antiphospholipid antibodies.</p> <p>Pregnant women with antiphospholipid syndrome should be considered for treatment with low-dose aspirin plus heparin to prevent further miscarriage.</p> <p>Neither corticosteroids nor intravenous immunoglobulin therapy improve the live birth rate of women with recurrent miscarriage associated with antiphospholipid antibodies compared with other treatment modalities; their use may provoke significant maternal and fetal morbidity</p> <p>There is insufficient evidence to evaluate the effect of progesterone supplementation in pregnancy to prevent a miscarriage in women with recurrent miscarriage.</p>
19.	<p>A 23 year old woman who has been using an intrauterine system (Mirena coil) for one year now complains of lower abdominal pain and menstrual irregularities. She has no significant past medical history. Which is the SINGLE most likely cause of her symptoms?</p> <p>A. Pelvic Inflammatory Disease (PID) B. Endometriosis</p>



- C. Adenomyosis
- D. Fibroids
- E. Asherman syndrome

Intrauterine contraceptive devices are a risk factor for pelvic inflammatory disease. Women of her age group (<25 years old) are of greater risk for pelvic inflammatory disease as they are more sexually active during this period.

Other options are less likely because:

Endometriosis, adenomyosis and fibroids → Are less likely as an intrauterine system is likely to benefit symptoms and not worsen them

Asherman syndrome → are adhesions of the endometrium often associated with dilation and curettage of the intrauterine cavity. It results in infertility. Often, they experience menstrual irregularities. But in this question there is no relevant past medical history meaning she did not have any dilation and curettage thus this option is very unlikely.

Pelvic inflammatory disease (PID)

Pelvic inflammatory disease (PID) is a term used to describe infection and inflammation of the female pelvic organs including the uterus, fallopian tubes, ovaries and the surrounding peritoneum. Most commonly caused by ascending infection from the endocervix.

Causative organisms

- Chlamydia trachomatis - the most common cause
- Neisseria gonorrhoeae

Risk factors for PID

- Age <25
- Previous STIs
- New sexual partner/multiple sexual partners
- Uterine instrumentation such as surgical termination of pregnancy
- Intrauterine contraceptive devices
- Post-partum endometritis

Features

- lower abdominal pain
- fever
- deep dyspareunia
- dysuria and menstrual irregularities may occur
- vaginal or cervical discharge
- cervical excitation

Investigation

- screen for Chlamydia and Gonorrhoea



	<p>Management</p> <ul style="list-style-type: none">There are many combinations of antibiotics to treat PID. It is unlikely that the PLAB test would ask you the management of PID. PLAB questions may ask you for the management of cervicitis (but unlikely PID). Remember, cervicitis is not the same as PID. <p>This is one of the combination examples for treatment of PID: Outpatients: Ceftriaxone 500 mg as a single intramuscular dose, followed by oral doxycycline 100 mg twice daily plus oral metronidazole 400 mg twice daily, both for 14 days.</p> <p>Note the differences between acute PID and just cervicitis. If just cervicitis (Chlamydia)</p> <ul style="list-style-type: none">Azithromycin 1g single dose (OR doxycycline 100mg bd for 7 days) (both have similar efficacy of more than 95%) <p>If just cervicitis (Neisseria gonorrhoeae)</p> <ul style="list-style-type: none">Azithromycin 1g PO and ceftriaxone 500mg IMRCOG guidelines suggest that in mild cases of PID intrauterine contraceptive devices may be left in. The more recent BASHH guidelines suggest that the evidence is limited but that 'Removal of the IUD should be considered and may be associated with better short term clinical outcomes' <p>Complications</p> <ul style="list-style-type: none">infertility - the risk may be as high as 10-20% after a single episodechronic pelvic painectopic pregnancy
20.	<p>A 20 year old woman, 32 weeks gestation, presents to the emergency department with a history of painless vaginal bleeding after intercourse. On examination, a soft and relaxed uterus is noted with a fundal height of 32 cm. CTG is reactive. She has not attended any antenatal clinics previously and has not had any previous ultrasound scans. She has a pulse of 122 beats/minute, a blood pressure of 84/60 mmHg and a respiratory rate of 28 breaths/minute. What is the SINGLE most likely diagnosis?</p> <p>A. Abruptio of placenta secondary to pre-eclampsia B. Placenta accreta C. Placenta praevia D. Preterm labor E. Vasa praevia</p> <p>Placenta praevia Placenta praevia describes a placenta lying wholly or partly in the lower uterine segment. This is common early in the pregnancy, but is most often not associated with bleeding.</p> <p>The key clinical feature is painless bleeding after 24 weeks of gestation.</p>



	<p>Risk factors</p> <ul style="list-style-type: none">• previous placenta praevia• multiple pregnancies <p>Note: 5% will have low-lying placenta when scanned at 16-20 weeks gestation incidence at delivery is only 0.5%, therefore most placentas rise away from cervix</p> <p>Clinical features</p> <ul style="list-style-type: none">• Painless vaginal bleed• uterus not tender• lie and presentation may be abnormal• fetal heart usually normal <p>Note: the painless late-pregnancy bleeding may occur during rest or activity, suddenly and without warning. It may be preceded by trauma, coitus, or pelvic examination.</p> <p>Diagnosis</p> <p>This is based on the presence of painless late-trimester vaginal bleeding with an obstetric ultrasound showing placental implantation over the lower uterine segment.</p>
21.	<p>A 33 year old, obese lady has irregular menstrual periods for the last 2 years.</p> <p>Lab results show:</p> <p>Follicle-stimulating hormone (FSH) 24 IU/L Luteinizing Hormone (LH) 90 IU/L Prolactin 59 ng/mL</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Polycystic ovary syndrome B. Premature ovarian failure C. Hypothyroidism D. Early menopause E. Primary obesity</p> <p>She has high LH, normal FSH and slightly high prolactin levels. These are not diagnostic for PCOS but among the choices given, the lab results reflect PCOS.</p> <p>Serum LH levels are elevated in approximately 40% of women with PCOS, owing to increased production (increased amplitude and frequency of LH pulses)</p> <p>Prolactin may be mildly elevated in PCOS. It has been described by some authors that women with polycystic ovary syndrome (PCOS) may have elevated levels of prolactin. However, a diagnostic criterion is to rule out other possible causes, including hyperprolactinemia. This is because high prolactin levels have many of the same symptoms as PCOS and needs to be</p>



ruled out to be certain of a PCOS diagnosis.

Polycystic ovarian syndrome (PCOS)

Polycystic ovary syndrome (PCOS) is a complex endocrine disorder with clinical features that include hirsutism and acne (due to excess androgens), oligomenorrhoea or amenorrhoea, and multiple cysts in the ovary.

Symptoms:

- irregular periods or no periods at all
- an increase in facial or body hair (hirsutism)
- loss of hair on your head
- being overweight, experiencing a rapid increase in weight or having difficulty losing weight
- oily skin, acne
- difficulty becoming pregnant (reduced fertility)

Diagnosis → Rotterdam consensus criteria

Two out of three of the following criteria being diagnostic of the condition:

1. Ultrasound → polycystic ovaries (either 12 or more follicles or increased ovarian volume)
2. oligo-ovulation or anovulation
3. clinical and/or biochemical signs of hyperandrogenism

General management

- Weight loss

Management for menstrual irregularities

- Weight loss
- COCP or cyclical progestogen or levonorgestrel intrauterine system.

Management of infertility

- Weight loss → weight loss alone may achieve spontaneous ovulation
- Clomifene Citrate
- If clomifene citrate fails, add on metformin or gonadotrophins or Laparoscopic ovarian drilling

Note regarding metformin:

- The RCOG published an opinion paper in 2008 and concluded that on current evidence metformin is not a first line treatment of choice in the management of PCOS
- Metformin is however still used, either combined with clomifene or alone, particularly in patients who are obese



- 22.** A 30 year old multiparous woman has just delivered a term male baby. She is group A(-) and her husband's blood group is unknown. She does not remember having any intramuscular injections in her previous pregnancy. The infant boy develops severe jaundice within a few hours after being born. What is the SINGLE most likely diagnosis?

- A. Hereditary spherocytosis
- B. G6PD
- C. ABO incompatibility
- D. Rh incompatibility**
- E. Physiological jaundice

Rhesus negative pregnancy

A basic understanding of the pathophysiology is essential to understand Rhesus negative pregnancies.

If a Rh -ve mother delivers a Rh +ve child a leak of fetal red blood cells may occur, this causes anti-D IgG antibodies to form in mother. In later pregnancies these antibodies can cross placenta and cause haemolysis in fetus.

In this question, she gives a history of not receiving intramuscular injections (which include IM anti-RhD immunoglobulin (Rho(D) immune globulin). Thus she is probably isoimmunized.

Prevention

- test for anti-D antibodies in all Rh -ve mothers at booking
- NICE (2008) advise giving anti-D to non-sensitised Rh -ve mothers at 28 and 34 weeks
- anti-D is prophylaxis - once sensitization has occurred it is irreversible

Anti-D immunoglobulin should be given as soon as possible (but always within 72 hours) in the following situations:

- delivery of a Rh +ve infant, whether live or stillborn
- any termination of pregnancy
- miscarriage if gestation is > 12 weeks
- ectopic pregnancy
- external cephalic version
- antepartum haemorrhage
- amniocentesis, chorionic villus sampling, fetal blood sampling

Affected fetus

- oedematous (hydrops fetalis, as liver devoted to RBC production albumin falls)
- jaundice, anaemia, hepatosplenomegaly
- treatment: transfusions, UV phototherapy



23.	<p>A 32 year old female with type 2 diabetes mellitus would like to know about vitamins and supplements in pregnancy. Which SINGLE most likely vitamin prevents teratogenic effects in an unborn child?</p> <p>A. Folic acid B. Vitamin B12 C. Thiamine D. Riboflavin E. Pyridoxine</p> <p>Advise women with diabetes who are planning to become pregnant to take folic acid (5 mg/day) until 12 weeks of gestation to reduce the risk of having a baby with a neural tube defect.</p>
24.	<p>A 25 year old woman has vaginal discharge, intermenstrual bleeding and post coital bleeding. She is sexually active and does not use any form of contraception. What is the SINGLE most appropriate investigation?</p> <p>A. High vaginal swab B. Endocervical swab C. Urine culture and sensitivity D. Blood culture E. Pelvic ultrasound scan</p> <p>The likely diagnosis here is cervicitis caused by either chlamydia or neisseria gonorrhoeae. An endocervical or vulvovaginal swab would give the diagnosis</p> <p>A high vaginal swab (HVS) is only worthwhile where there are recurrent symptoms, treatment failure or in pregnancy, postpartum, post-abortion or post-instrumentation.</p> <p>Cervicitis (Chlamydia and Neisseria gonorrhoeae)</p> <ul style="list-style-type: none">• Usually asymptomatic• Can present with vaginal discharge, low abdominal pain, intermenstrual bleeding or post coital bleeding <p>Diagnosis</p> <ul style="list-style-type: none">• Endocervical or vulvovaginal swab with NAAT <p>Diagnosis in detail</p> <ul style="list-style-type: none">• Endocervical swab in transport medium (charcoal preferably) is to diagnose gonorrhoea.• Endocervical swab for a chlamydial nucleic acid amplification test (NAAT) is to diagnose chlamydia.• If examination is declined, a self-taken vulvovaginal swab for C. trachomatis and N. gonorrhoeae for NAAT may be an option and is more sensitive in women than urine testing



25. A 41 year old lady who is 37 weeks pregnant was brought to A&E. On arrival, she has a seizure. Her husband says a few hours ago she complained of headache, visual disturbance and abdominal pain. What is the SINGLE most appropriate management?

A. 4g MgSO₄ in 100 ml 0.9% normal saline in 5 minutes

B. 4g MgSO₄ bolus intravenously

C. 2g MgSO₄ in 500 ml normal saline in 1 hour

D. 2g MgSO₄ bolus intravenously

E. 10mg diazepam in 500 ml 0.9% normal saline in 1 hour

Eclampsia

Eclampsia is defined as the occurrence of a tonic-clonic seizure in association with a diagnosis of pre-eclampsia.

Eclampsia is an obstetric emergency. Every hospital in the UK should have an eclampsia protocol and eclampsia box with all the drugs for treatment.

Prevention and control of seizures:

- Magnesium sulfate should be considered when there is concern about the risk of eclampsia. It is used to prevent seizures as well as control it.
- To control a seizure, a loading dose of 4 g MgSO₄ in 100 ml 0.9% normal saline is given by infusion pump over 5-10 minutes. This is followed by a further infusion of 1 g/hour maintained for 24 hours after the last seizure.
- Recurrent seizures should be treated with either a further bolus of 2 g of magnesium sulfate or an increase in the infusion rate to 1.5 g or 2.0 g/hour.

26. A 56 year old woman who is a heavy smoker is diagnosed with cervical intraepithelial neoplasia grade 2. She is a mother of three children. She is worried of ovarian cancer because her older sister died of ovarian cancer. She has been on hormone replacement therapy for 3 years. What is the SINGLE most relevant risk factor for ovarian cancer in her case?

A. Smoking

B. Family history

C. Cervical intraepithelial neoplasia grade

D. Hormone replacement therapy

E. Pregnancy

Family history of ovarian cancer is an important risk factor. Women with a first-degree relative with ovarian cancer have 3-4 times the risk of developing the disease. However, only 10% of cases arise in women with a positive family history.

Smoking is a risk factor but it is not as important as family history. It is estimated that 2% of cases may be caused by smoking.[]

HRT increases the risk of developing ovarian cancer but only slightly and it is only seen in patients using HRT for more than five years. About 1% of cases may be linked with taking



	<p>HRT. Further studies are needed to ascertain the exact risk.</p> <p>Ovarian Cancer Risk factors</p> <ul style="list-style-type: none">• Family history: mutations of the BRCA1 or the BRCA2 gene• Many ovulations: early menarche, late menopause, nulliparity• Age → incidence increases with age <p>Protective factors against ovarian cancer:</p> <ul style="list-style-type: none">• COCP• Pregnancy
27.	<p>A 28 week pregnant lady presents with painless vaginal bleeding after sexual intercourse. The cervical os is closed. On ultrasound, placenta is noted to be anterior and high. Fetal movements and fetal heart is seen on scan. Abdomen is soft and non tender. What is the SINGLE most likely diagnosis?</p> <p>A. Missed miscarriage B. Disseminated intravascular coagulation C. Placental abruption D. Placental praevia E. Cervical ectropion</p> <p>Post coital bleeding could be a symptom of either placenta praevia or cervical ectropion. As the placenta is noted to be high, it is not placenta praevia. Fetal heart was seen which excludes the diagnosis of missed miscarriage. Placenta abruption would present a hard, tender abdomen. There are no signs or symptoms of disseminated intravascular coagulation. Cervical ectropion would be the most likely diagnosis.</p> <p>Cervical ectropion</p> <ul style="list-style-type: none">• This occurs when the columnar epithelium of the endocervix is displayed beyond the os. The stratified squamous epithelium that normally lines the vaginal part of the cervix (ectocervix) is replaced by columnar epithelium, which has migrated from the endocervix.<ul style="list-style-type: none">• The cervix enlarges under the influence of oestrogen and as a result the endocervical canal is everted. Exposure of high levels of oestrogen usually occurs at certain times (e.g. puberty, in pregnancy or women on COCP)• It is seen on examination as a red ring around the os and is so common as to be regarded as normal• It is generally an asymptomatic condition but patients occasionally present with bleeding or excessive discharge• The discharge if present is usually clear, watery in consistency and without odour• Once a normal cervical smear has been confirmed, it is actively managed only if there are symptoms.• After stopping any oestrogen-containing contraceptive, treatment options include diathermy, or cryotherapy



28. A 64 year old woman has been on hormone replacement therapy for 5 years. She had regular withdrawal bleeds until 3 years ago and has not had a bleeding since. Recently she noticed a brown vaginal discharge on her underpants. Her last cervical smear was 3 years ago which showed no abnormalities. What is the SINGLE most appropriate initial investigation?

- A. Cervical smear
- B. High vaginal swab
- C. Thyroid function test
- D. Transvaginal ultrasound**
- E. Abdominal CT scan

The idea here is to think of endometrial cancer. Any women who has postmenopausal bleeding should have a transvaginal ultrasound to determine the endometrial thickness. If the endometrium is thick, hysteroscopy with endometrial biopsy would be arranged.

The hormone replacement therapy in this scenario has no relevance as HRT (progesterone and oestrogen) is not a risk factor for endometrial cancer. Only unopposed oestrogen would be a risk factor for endometrial cancer.

A cervical smear is offered every 5 years in the UK if in the age group of 50 to 64 years old. Thus, having a cervical smear that was normal 3 years ago is a usual phenomenon. A repeat cervical smear is not necessary.

Endometrial cancer

Endometrial cancer is classically seen in post-menopausal women. Classically, endometrial cancer presents as postmenopausal bleeding (PMB) and, although this is not the only cause, it must be excluded.

Risk factors for endometrial cancer:

- Obesity
- Nulliparity
- early menarche
- late menopause
- unopposed oestrogen. The addition of a progestogen to oestrogen reduces this risk (e.g. In HRT). The BNF states that the additional risk is eliminated if a progestogen is given continuously
- diabetes mellitus
- tamoxifen
- polycystic ovarian syndrome

Features

In PLAB, they will always present with postmenopausal bleeding

Investigation

- first-line investigation is trans-vaginal ultrasound - a normal endometrial thickness (< 4 mm) has a high negative predictive value



	<ul style="list-style-type: none">• hysteroscopy with endometrial biopsy gives the definitive diagnosis <p>Management Is beyond the scope for PLAB. Remember, PLAB is an easy test.</p>
29.	<p>An 18 year old girl presents to the clinic with secondary amenorrhoea. Her BMI is 30. She has dark pigmentation on her neck and severe acne on her face. There is also thinning of hair. Blood test reveals elevated insulin levels, elevated LH levels and moderately elevated testosterone levels. What is the SINGLE most likely diagnosis?</p> <p>A. Cushing's syndrome B. Grave's disease C. Acquired hypothyroidism D. Polycystic ovarian syndrome E. Addison's disease</p> <p>Elevated insulin levels, elevated LH levels and moderately elevated testosterone levels can be seen in PCOS. The scenario of acne on her face points towards an excess of androgens (Hirsutism, alopecia, acne are all manifestations of hyperandrogenism). And not to mention that her initial complaint was secondary amenorrhoea which is one of the diagnostic criterion for PCOS.</p> <p>The dark pigmentation on her neck is called acanthosis nigricans which is characterised by brown to black hyperpigmentation of the skin found in body folds, such as the axilla, nape of the neck, groin is a marker of insulin resistance</p> <p>Polycystic ovarian syndrome (PCOS)</p> <p>Polycystic ovary syndrome (PCOS) is a complex endocrine disorder with clinical features that include hirsutism and acne (due to excess androgens), oligomenorrhoea or amenorrhoea, and multiple cysts in the ovary.</p> <p>Symptoms:</p> <ul style="list-style-type: none">• irregular periods or no periods at all• an increase in facial or body hair (hirsutism)• loss of hair on your head• being overweight, experiencing a rapid increase in weight or having difficulty losing weight• oily skin, acne• difficulty becoming pregnant (reduced fertility). <p>Diagnosis → Rotterdam consensus criteria Two out of three of the following criteria being diagnostic of the condition:</p> <ol style="list-style-type: none">1. Ultrasound → polycystic ovaries (either 12 or more follicles or increased ovarian volume)2. oligo-ovulation or anovulation3. clinical and/or biochemical signs of hyperandrogenism



	<p>General management</p> <ul style="list-style-type: none">• Weight loss <p>Management for menstrual irregularities</p> <ul style="list-style-type: none">• Weight loss• COCP or cyclical progestogen or levonorgestrel intrauterine system. <p>Management of infertility</p> <ul style="list-style-type: none">• Weight loss → weight loss alone may achieve spontaneous ovulation• Clomifene Citrate• If clomifene citrate fails, add on metformin or gonadotrophins or Laparoscopic ovarian drilling <p>Note regarding metformin:</p> <ul style="list-style-type: none">• The RCOG published an opinion paper in 2008 and concluded that on current evidence metformin is not a first line treatment of choice in the management of PCOS• Metformin is however still used, either combined with clomifene or alone, particularly in patients who are obese
30.	<p>A 22 year old woman was prescribed rifampicin for prophylaxis as her roommate was diagnosed with meningococcal meningitis. She has been taking combined oral contraception for the past year and is sexually active. Which is the SINGLE most appropriate advice to give to her?</p> <p>A. Use alternative methods such as barrier methods</p> <p>B. Stop combined oral contraceptive pill for a week</p> <p>C. Attend A&E if face begins swelling</p> <p>D. Avoid exercising for 3 days</p> <p>E. Continue combined oral contraceptives as usual</p> <p>Combined hormonal contraceptives are less reliable during treatment with rifampicin. Breakthrough bleeding and spotting are common, and pregnancies have occurred</p> <p>Action:</p> <p>Use alternative methods (IUDs, depot or barrier methods), an increased ethinylestradiol dose (at least 50 micrograms during and for 28 days after rifampicin is stopped), an extended or tricycling regimen or a suitable alternative antibacterial should be given.</p>



31.	<p>A pregnant woman with long term history of osteoarthritis comes to the antenatal clinic with complaints of restricted joint movement and severe pain in her affected joints. What is the SINGLE most appropriate management?</p> <p>A. Paracetamol B. Steroids C. NSAID D. Paracetamol and Dihydrocodeine E. Pethidine</p> <p>It is important to remember that as junior doctors, you should never prescribe any pain relief other than paracetamol to a pregnant women. Paracetamol has a good safety profile with pregnant women when compared to all the other analgesics. There are cases where stronger pain relief is needed, but usually consultants would be involved in the management.</p> <p>For the purpose of PLAB part 1, whenever you see a pregnant lady with any sort of pain (whether it is from osteoarthritis, back pain, headaches, or a sprained ankle), never give any analgesia except for paracetamol.</p>
32.	<p>A 33 year old woman, with 3 previous normal vaginal deliveries is diagnosed with stress incontinence. She has tried pelvic floor exercises and lifestyle modifications but they have not been successful. Her BMI is 29. What is the SINGLE most appropriate management?</p> <p>A. Tension free vaginal tape B. Bladder training C. Oestrogen D. Intermittent urethral catheters E. Antimuscarinic medications</p> <p>Stress incontinence is a leak of small amounts of urine when coughing or laughing. Usually with a history of many vaginal deliveries as this would weaken the pelvic floor muscles. The next management here would be surgical. A tension free vaginal tape would be appropriate.</p> <p>The other options are less likely the correct answer:</p> <p>Bladder training → is used for women with urgency or mixed urinary incontinence. It is not used for stress incontinence.</p> <p>Oestrogens → Do not offer systemic hormone replacement therapy for the treatment of urinary incontinence</p> <p>Intermittent urethral catheters → This is primarily for people with urinary retention rather than stress incontinence</p> <p>Antimuscarinic medications → Are used to treat overactive bladder and not stress incontinence.</p>



33.	<p>A 29 year old woman experienced severe blood loss shortly after delivery of a still born vaginally, following a major placental abruption. Given the risk factors, what is the SINGLE most likely predisposing factor for developing postpartum haemorrhage in this women?</p> <p>A. Retained product B. Disseminated intravascular coagulation (DIC) C. Fibroid uterus D. Uterine infection E. Large placental site</p> <p>Although incidence of DIC as a cause of postpartum haemorrhage is low. This question is giving all the risk factors that would lead to disseminated intravascular coagulation (DIC)</p> <p>With severe abruption, severe disseminated intravascular coagulation (DIC) may occur.</p> <p>Fetal demise is also a risk factor for DIC resulting from release of tissue thromboplastin from deteriorating fetal organs.</p> <p>Other causes of pregnancy related DIC are: eclampsia, retention of a dead fetus, amniotic fluid embolism, retained placenta or bacterial sepsis.</p>
34.	<p>A 27 year old asian nulliparous woman with type 1 diabetes mellitus has delivered a baby weighing 4.5kg with the help of forceps. The placenta was removed with continuous cord traction and her uterus is well contracted however she continues to bleed heavily. What is the SINGLE most likely cause of her postpartum haemorrhage?</p> <p>A. Atonic uterus B. Cervical/vaginal trauma C. Retained POC D. Large placental site E. Rupture uterus</p> <p>The most common cause of postpartum haemorrhage is uterine atony however this is not the case here as the uterus is well contracted. The risk factors point towards a genital tract trauma. Asian ethnicity, nulliparous, diabetic and big baby were thrown in as these are risk factors towards a 3rd and 4th degree perineal tear which can be the sole cause of the PPH.</p> <p>Causes for PPH may be considered to relate to one or more of 'the four Ts':</p> <ul style="list-style-type: none">• tone (abnormalities of uterine contraction)• tissue (retained products of conception)• trauma (of the genital tract)• thrombin (abnormalities of coagulation). <p>The most common cause of primary PPH is uterine atony. However, clinical examination must be undertaken to exclude other or additional causes:</p> <ul style="list-style-type: none">• retained products (placenta, membranes, clots)



	<ul style="list-style-type: none">• vaginal/cervical lacerations or haematoma• ruptured uterus• broad ligament haematoma• extragenital bleeding (for example, subcapsular liver rupture)• uterine inversion.
35.	<p>A 26 year old woman presents with a “fishy” vaginal discharge. On examination, a homogenous grey-white vaginal discharge is seen. Vaginal pH is 5.8. What is the SINGLE most appropriate management?</p> <p>A. Metronidazole B. Azithromycin C. Doxycycline D. Ceftriaxone E. Flucloxacillin</p> <p>Bacterial vaginosis Bacterial vaginosis (BV) is caused by an overgrowth of mixed anaerobes, such as <i>Gardnerella vaginalis</i>, which replace the usually dominant vaginal lactobacilli resulting in a raised vaginal pH.</p> <p>It is the commonest cause of abnormal vaginal discharge in women of childbearing age.</p> <p>Whilst BV is not a sexually transmitted infection it is seen almost exclusively in sexually active women.</p> <p>Features</p> <ul style="list-style-type: none">• Vaginal discharge: 'fishy', offensive The characteristic 'fishy' smell is due to the presence of amines released by bacterial proteolysis and is often the reason women attend the clinic• Asymptomatic in 50% <p>Amsel's criteria for diagnosis of BV → 3 out of 4 required for diagnosis:</p> <ul style="list-style-type: none">• Homogenous grey-white discharge• Characteristic fishy smell• 'Clue cells' present on microscopy• Vaginal pH > 5.5 <p>Management May resolve spontaneously and if successfully treated has a high recurrence rate. However, most women prefer it to be treated.</p> <ul style="list-style-type: none">• Metronidazole 400mg orally bd for 5 days or metronidazole 2g (single dose) OR• Clindamycin 2% cream vaginally at night for 7 days



36. A 31 year old primigravida at 24 weeks' gestation was admitted 24 hours ago to the maternity unit because of preterm premature rupture of membranes (PPROM). She is starting to have abdominal pains and uterine contractions. She has a pulse rate of 102 beats/minute and a temperature of 38.6°C. Routine examination of the patient's abdomen reveals tenderness suprapubically. A speculum examination reveals a foul-smelling discharge originating from the cervix with the cervix slightly opened. What is the SINGLE most likely diagnosis?

- A. Placental abruption
- B. Chorioamnionitis**
- C. Bacterial vaginosis
- D. Urinary tract infection
- E. Threatened miscarriage

Fever, maternal tachycardia, tenderness suprapubically and purulent vaginal discharge with history of ruptured membranes points towards chorioamnionitis.

There is no indication of miscarriage here which is characterised by vaginal blood loss.

Chorioamnionitis

Chorioamnionitis is an acute inflammation of the foetal amnion and chorion membranes, typically due to an ascending bacterial infection in the setting of membrane rupture.

Features suggestive of chorioamnionitis

- Fever
- Abdominal pain, including contractions
- Maternal pyrexia and tachycardia.
- Uterine tenderness.
- Fetal tachycardia
- Maternal tachycardia.
- Speculum: offensive vaginal discharge → yellow/brown

37. A 38 year old woman has had no menstrual periods for the last 11 months. Prior to that she had regular menstrual cycles. FSH was found raised on two separate occasions a month apart. What is the SINGLE most likely diagnosis?

- A. Polycystic ovarian syndrome
- B. Premature ovarian failure**
- C. Early menopause
- D. Fragile X
- E. Addison's disease

Premature ovarian failure

Premature ovarian failure (Premature ovarian insufficiency) is defined as the onset of menopausal symptoms and elevated gonadotropin levels before the age of 40 years. It occurs in around 1 in 100 women.

**Causes**

- Idiopathic - the most common cause
- Chemotherapy (this can be temporary, as recovery of ovarian function can occur, especially in younger women)
- Radiation
- Autoimmune disease
- Bilateral oophorectomy or surgical menopause

Presentation

1. The most common presentation is amenorrhoea or oligomenorrhoea (which may not necessarily be accompanied by hot flashes)
2. Infertility
3. Other features are similar to those of the normal climacteric symptoms:
 - Hot flashes
 - Night sweats
 - Irritability
 - Poor concentration
 - Decreased sex drive
 - Dyspareunia
 - Vaginal dryness

Tests:**FSH levels:**

- FSH test should be undertaken in women aged under 40 years in whom menopause is suspected
- Two raised levels (more than 40 IU/L) taken at least four weeks apart are diagnostic

Serum follicle-stimulating hormone (FSH) measurement alone can be used to diagnose the disease. The anterior pituitary secretes FSH and LH at high levels due to the dysfunction of the ovaries and consequent low estrogen levels.

Management:

- hormone replacement therapy (HRT) until at least the average age of the menopause (51 years)

(The average age of the menopause in women in the UK is 51 years)

Important Notes:**Do NOT use early menopause and premature ovarian failure interchangeably**

- The term early menopause is used for those women who go through their menopause between 40-45 years

Do NOT use premature menopause and premature ovarian failure interchangeably



	<ul style="list-style-type: none">Premature ovarian failure is sometimes referred to as premature menopause, but the two conditions aren't exactly the same. Women with premature ovarian failure may have irregular or occasional periods for years and may even become pregnant. Women with premature menopause stop having periods and can't become pregnant.
38.	<p>A 16 year old clinically obese girl has not started her menstrual periods yet. She has severe acne and facial hair growth. Among her investigations, a high level of insulin was found. What is the SINGLE most likely diagnosis?</p> <p>A. Cushing's syndrome B. Grave's disease C. Acquired hypothyroidism D. Polycystic ovary syndrome E. Addison's disease</p> <p>Polycystic ovary syndrome (PCOS) would fit the best among the answers. Cushing's would be a consideration here as it can sometimes cause amenorrhoea too.</p> <p>Polycystic ovarian syndrome (PCOS)</p> <p>Polycystic ovary syndrome (PCOS) is a complex endocrine disorder with clinical features that include hirsutism and acne (due to excess androgens), oligomenorrhoea or amenorrhoea, and multiple cysts in the ovary.</p> <p>Symptoms:</p> <ul style="list-style-type: none">irregular periods or no periods at allan increase in facial or body hair (hirsutism)loss of hair on your headbeing overweight, experiencing a rapid increase in weight or having difficulty losing weightoily skin, acnedifficulty becoming pregnant (reduced fertility) <p>Diagnosis → Rotterdam consensus criteria Two out of three of the following criteria being diagnostic of the condition:</p> <ol style="list-style-type: none">Ultrasound → polycystic ovaries (either 12 or more follicles or increased ovarian volume)oligo-ovulation or anovulationclinical and/or biochemical signs of hyperandrogenism <p>General management</p> <ul style="list-style-type: none">Weight loss <p>Management for menstrual irregularities</p> <ul style="list-style-type: none">Weight lossCOC or cyclical progestogen or levonorgestrel intrauterine system. <p>Management of infertility</p>



	<ul style="list-style-type: none">• Weight loss → weight loss alone may achieve spontaneous ovulation• Clomifene Citrate• If clomifene citrate fails, add on metformin or gonadotrophins or Laparoscopic ovarian drilling <p>Note regarding metformin:</p> <ul style="list-style-type: none">• The RCOG published an opinion paper in 2008 and concluded that on current evidence metformin is not a first line treatment of choice in the management of PCOS• Metformin is however still used, either combined with clomifene or alone, particularly in patients who are obese
39.	<p>A 24 year old woman stopped taking combined oral contraceptive pills 11 months ago and she has not had her menstrual period since.</p> <p>Her blood results show:</p> <p>Follicle-stimulating hormone (FSH) 11 IU/L Luteinizing Hormone (LH) 15 IU/L Prolactin 72 ng/mL Oestradiol 53 pmol/L</p> <p>What is the SINGLE most likely cause?</p> <p>A. Hypothalamic amenorrhoea B. Polycystic ovary syndrome C. Prolactinoma D. Post pill amenorrhoea E. Premature ovarian failure</p> <p>Post pill amenorrhoea</p> <p>Post pill amenorrhoea occurs when stopping oral contraceptives does not lead to a resumption of a normal menstrual cycle. It is described as the loss of menstrual periods for at least 6 months after stopping birth control pills.</p> <p>Post-pill amenorrhea is believed to be due to suppression of the pituitary gland by the birth control pills.</p> <p>Investigations</p> <p>Investigation are usually needed if menstrual cycles do not resume after 3 months post pill. It may be that the cause of amenorrhoea started whilst taking the contraceptives which induced an artificial cycle, masking the issue until they were stopped.</p> <ul style="list-style-type: none">• Ultrasonography will reveal ovaries with no signs of developing follicles and ovulation even after having stopped the pills for 6 months• Blood tests showing a low level of FSH, LH and oestrogen is usually sufficient to confirm the diagnosis



	<p>Treatment</p> <ul style="list-style-type: none">• The first line of treatment in case of post-pill amenorrhea is waiting for a spontaneous remission of the amenorrhea and a spontaneous occurrence of periods.• The time limit is usually six months. But if the woman is anxious to get her periods, active treatment may be started after waiting for only three months. The standard treatment of post-pill amenorrhea is by stimulating the pituitary to produce FSH and LH. This is done by the drug clomiphene citrate.
40.	<p>A 27 year old woman had pre-eclampsia and was delivered by C-section. She is now complaining of right upper quadrant pain. What is the SINGLE most appropriate immediate investigation?</p> <p>A. Coagulation profile B. Liver function test C. Liver ultrasound D. Magnetic Resonance Cholangiopancreatography E. CT abdomen</p> <p>This lady has pre-eclampsia, and now has RUQ pain. This could be a potential HELLP syndrome. Liver function test would help us with the diagnosis.</p> <p>HELLP syndrome</p> <p>This is a serious complication regarded by most as a variant of severe pre-eclampsia which manifests with haemolysis (H), elevated liver enzymes (EL), and low platelets (LP).</p> <p>Liver enzymes usually increase and platelets decrease before haemolysis occurs.</p> <p>The syndrome is usually self-limiting, but permanent liver or renal damage may occur.</p> <p>Note that eclampsia may co-exist.</p> <p>Signs and Symptoms:</p> <ul style="list-style-type: none">• Epigastric or RUQ pain and tenderness• Nausea and vomiting• Urine is 'tea-coloured' due to haemolysis.• Increased BP and other features of pre-eclampsia <p>Management</p> <ul style="list-style-type: none">• Delivery• Supportive and as for eclampsia (magnesium sulfate (MgSO₄) is indicated)



- 41.** A 27 year old woman has pelvic pain, dysmenorrhoea and increasingly heavy periods over the last 12 months. She also complains of dyspareunia. There is generalized pelvic tenderness without peritonism. A pelvic ultrasound was reported as normal. What is the SINGLE most likely diagnosis?

A. Endometriosis

- B. Uterine fibroid
- C. Pelvic congestion syndrome
- D. Premature ovarian failure
- E. Fibromyalgia

There are actually two possibilities here. Endometriosis and pelvic congestion syndrome. Given that endometriosis is much more common than pelvic congestion syndrome, endometriosis is the answer.

Endometriosis presents exactly the way they describe in this question with chronic pelvic pain, dysmenorrhoea and dyspareunia. Pelvic ultrasound scans are usually normal.

In pelvic venous congestion there are dilated pelvic veins believed to cause a cyclical dragging pain. It is worse premenstrually and after prolonged periods of standing and walking. Dyspareunia is also often present.

Given there is no history of standing here, pick endometriosis. It is also by far more a common diagnosis when it comes to chronic pelvic pain.

Endometriosis

Endometriosis is the presence of endometrial-like tissue outside the uterine cavity. It is oestrogen dependent, and therefore mostly affects women during their reproductive years. If the ectopic endometrial tissue is within the myometrium itself it is called adenomyosis.

Up to 10-12% of women have a degree of endometriosis

Clinical features

- Chronic pelvic pain (cyclic or constant)
- Dysmenorrhoea - pain often starts days before bleeding
- Deep dyspareunia (indicates possible involvement of uterosacral ligaments)
- Subfertility

Investigation

- Laparoscopy is the gold-standard investigation
- Transvaginal ultrasound scanning appears to be a useful test, both to make and to exclude the diagnosis of an ovarian endometrioma

Management

- NSAIDs to treat pain
- Combined oral contraceptive pill (other hormonal drugs can be used too)



	<ul style="list-style-type: none">Levonorgestrel intrauterine system <p>Note: Drug therapy unfortunately does not seem to have a significant impact on fertility rates</p> <p>Surgery</p> <ul style="list-style-type: none">Laparoscopic excision and ablation of endometrioid lesions helps reduce endometriosis-associated pain. Laparoscopic excision and ablation of endometriotic ovarian cysts may improve fertility.
42.	<p>A 45 year old lady comes to the family planning clinic for contraception advice. She has two young children and does not want anymore children. An incidental finding of multiple small submucosal fibroids was found recently on an ultrasound scan. She is asymptomatic and her medical history is otherwise insignificant. What is SINGLE most appropriate contraceptive for this lady?</p> <p>A. Etonogestrel B. Combined oral contraceptive pill (COCP) C. Progestogen-only pill (POP) D. Intrauterine system (IUS) E. Intrauterine Contraceptive Device (IUCD)</p> <p>Combined hormonal contraception (CHC): despite the 'pill' previously being considered a risk factor for fibroid growth, CHC is helpful if the patient requires contraception, although it is not as effective as a levonorgestrel-releasing intrauterine system. Thus, intrauterine system would be the answer here.</p> <p>Intrauterine system (IUS) reduces the uterine size in women with fibroids.</p> <p>If this lady here had presented with asymptomatic fibroids and was not looking for contraception, expectant management would be a valid answer especially if she was perimenopausal.</p> <p>Treatment options for uterine fibroids</p> <ul style="list-style-type: none">No treatment may be necessary if minimal symptoms.GnRH analogues shrink fibroids, but should only be used for this purpose prior to surgery.Myomectomy: open, laparoscopic, or hysteroscopic depending upon location (especially when wish to preserve fertility and when the fibroids are distinctly isolated on scan)Hysterectomy: women who have either completed their family or are over 45 years. It is a guaranteed cure of fibroids as there is no longer a uterus.Uterine artery embolization: uterine artery is catheterized generally using the unilateral approach; polyvinyl alcohol powder or gelatin sponge is used as the embolic material (minimally invasive procedure with avoidance of a general anaesthetic) <p>Note: Surgery is indicated when:</p> <ul style="list-style-type: none">There is excessively enlarged uterine size.



	<ul style="list-style-type: none">• Pressure symptoms are present.• Medical management is not sufficient to control symptoms.• The fibroid is submucous and fertility is reduced.
43.	<p>A 27 year old waitress has pelvic pain, dysmenorrhoea and increasingly heavy periods over the last 9 months. The pain is worse when she is standing for long periods of time. She also complains of dyspareunia. A pelvic ultrasound was reported as normal. A diagnostic laparoscopy was performed which did not show any abnormalities. What is the SINGLE most likely diagnosis</p> <p>A. Endometriosis B. Uterine fibroid C. Pelvic congestion syndrome D. Pelvic inflammatory disease E. Fibromyalgia</p> <p>In pelvic venous congestion there are dilated pelvic veins believed to cause a cyclical dragging pain. It is worse premenstrually and after prolonged periods of standing and walking. Dyspareunia is also often present.</p> <p>Non-organic dyspareunia + with symptoms similar to premenstrual syndrome + aggravated by standing = Pelvic congestion syndrome</p> <p>Pelvic congestion syndrome is a chronic medical condition in women caused by varicose veins in the lower abdomen. The condition causes chronic pain, often manifesting as a constant dull ache, which can be aggravated by standing. It is a diagnosis of exclusion where other organic causes of dyspareunia have been excluded. It may present as pain during intercourse that may be deep within the vagina with symptoms similar to premenstrual syndrome. It is caused by accumulation of blood during arousal without occurrence of orgasm. Achieving orgasm (by intercourse, masturbation, or use of a vibrator) may help to alleviate this congestion.</p>
44.	<p>A 34 year old girl presents to the infertility clinic with her husband. They have been trying to conceive for 3 years. Her BMI is 31. She has dark pigmentation on her neck and severe acne on her face. There is also thinning of hair. Multiple follicles were on her ovaries on ultrasound.. What is the SINGLE most appropriate initial management to treat her infertility?</p> <p>A. Weight loss B. Clomifene Citrate C. Laparoscopic ovarian drilling D. Combined oral contraceptive pills E. Spironolactone</p> <p>The most likely diagnosis here is Polycystic ovarian syndrome (PCOS). Multiple follicles seen on ovaries during an ultrasound helps confirm this. The scenario of acne on her face points towards an excess of androgens (Hirsutism, alopecia, acne are all manifestations of hyperandrogenism). And not to mention that her initial complaint was infertility which is one</p>



of the diagnostic criterion for PCOS.

The dark pigmentation on her neck is called acanthosis nigricans which is characterised by brown to black hyperpigmentation of the skin found in body folds, such as the axilla, nape of the neck, groin is a marker of insulin resistance

Weight loss is the most appropriate answer here as the question is asking for the INITIAL management.

Clomifene citrate is an option but weight loss comes first. Usually we would advise them to lose weight while getting blood test done to confirm anovulation.

Some clinicians would start them on metformin right away on their first visit. This is a debatable topic but since metformin was not given in the options, we can exclude that. Also, metformin are unlicensed for use in PCOS and women need to be counselled before initiating therapy. Because it is currently unlicensed for use in PCOS, PLAB is unlikely to ask this.

Laparoscopic drilling is a treatment for infertility for PCOS but is not first line.

COCP is a treatment for PCOS to regulate their irregular periods but it is not for treatment of infertility

Spirolactone (an antiandrogen) is used by endocrinologist to help with the effects of hirsutism. But again, it will not help with infertility.

Polycystic ovarian syndrome (PCOS)

Polycystic ovary syndrome (PCOS) is a complex endocrine disorder with clinical features that include hirsutism and acne (due to excess androgens), oligomenorrhoea or amenorrhoea, and multiple cysts in the ovary.

Symptoms:

- irregular periods or no periods at all
- an increase in facial or body hair (hirsutism)
- loss of hair on your head
- being overweight, experiencing a rapid increase in weight or having difficulty losing weight
- oily skin, acne
- difficulty becoming pregnant (reduced fertility).

Diagnosis → Rotterdam consensus criteria

Two out of three of the following criteria being diagnostic of the condition:

1. Ultrasound → polycystic ovaries (either 12 or more follicles or increased ovarian volume)
2. oligo-ovulation or anovulation
3. clinical and/or biochemical signs of hyperandrogenism



	<p>General management</p> <ul style="list-style-type: none">• Weight loss <p>Management for menstrual irregularities</p> <ul style="list-style-type: none">• Weight loss• COCP or cyclical progestogen or levonorgestrel intrauterine system. <p>Management of infertility</p> <ul style="list-style-type: none">• Weight loss → weight loss alone may achieve spontaneous ovulation• Clomifene Citrate• If clomifene citrate fails, add on metformin or gonadotrophins or Laparoscopic ovarian drilling <p>Note regarding metformin:</p> <ul style="list-style-type: none">• The RCOG published an opinion paper in 2008 and concluded that on current evidence metformin is not a first line treatment of choice in the management of PCOS• Metformin is however still used, either combined with clomifene or alone, particularly in patients who are obese
45.	<p>A 23 year old pregnant woman is admitted at 38 weeks gestation with a history of an eclamptic fit at home. Her blood pressure is 155/90 mmHg. She is conscious and observations are stable. What is the SINGLE most appropriate IV therapy to prevent further fits?</p> <p>A. Clomethiazole B. Diazepam C. Labetalol D. Magnesium sulphate E. Phenytoin</p> <p>Eclampsia</p> <p>Eclampsia is defined as the occurrence of a tonic-clonic seizure in association with a diagnosis of pre-eclampsia.</p> <p>Eclampsia is an obstetric emergency. Every hospital in the UK should have an eclampsia protocol and eclampsia box with all the drugs for treatment.</p> <p>Prevention and control of seizures:</p> <ul style="list-style-type: none">• Magnesium sulfate should be considered when there is concern about the risk of eclampsia. It is used to prevent seizures as well as control it.• To control a seizure, a loading dose of 4 g MgSO₄ in 100 ml 0.9% normal saline is given by infusion pump over 5-10 minutes. This is followed by a further infusion of 1 g/hour maintained for 24 hours after the last seizure.• Recurrent seizures should be treated with either a further bolus of 2 g of magnesium sulfate or an increase in the infusion rate to 1.5 g or 2.0 g/hour.



- 46.** A 30 year old female who has had 3 previous miscarriages, all before 10 weeks gestation. Antiphospholipid syndrome has been diagnosed. She now presents to the antenatal clinic asking if there is any treatment that she could have that could prevent another miscarriage. What is the SINGLE most appropriate management?

A. Aspirin

- B. Corticosteroids
C. Progesterone supplements
D. Folate
E. No treatment available

The diagnosis here is antiphospholipid syndrome in which case aspirin plus heparin is indicated. As there is no option for both aspirin and heparin, pick aspirin.

Antiphospholipid syndrome

Antiphospholipid syndrome is the most important treatable cause of recurrent miscarriage. Antiphospholipid syndrome refers to the association between antiphospholipid antibodies (lupus anticoagulant, anticardiolipin antibodies and anti-B2 glycoprotein-I antibodies) and adverse pregnancy outcome or vascular thrombosis.

All women with recurrent first-trimester miscarriage and all women with one or more second-trimester miscarriage should be screened before pregnancy for antiphospholipid antibodies.

Pregnant women with antiphospholipid syndrome should be considered for treatment with low-dose aspirin plus heparin to prevent further miscarriage.

Neither corticosteroids nor intravenous immunoglobulin therapy improve the live birth rate of women with recurrent miscarriage associated with antiphospholipid antibodies compared with other treatment modalities; their use may provoke significant maternal and fetal morbidity

There is insufficient evidence to evaluate the effect of progesterone supplementation in pregnancy to prevent a miscarriage in women with recurrent miscarriage.

- 47.** A 42 year old overweight smoker complains of heavy periods. An ultrasound scan reveals a normal uterus. She would like a long term treatment with minimal side effects that would offer treatment for the menorrhagia and provide contraception although she is still unsure if she would like children in the future. What is the SINGLE most appropriate management?

- A. Combined oral contraceptive pills
B. Endometrial ablation
C. Levonorgestrel intra-uterine system
D. Progestogen implant
E. Copper intrauterine contraceptive device



	<p>Among the options levonorgestrel intra-uterine system (Mirena coil) is the best treatment to reduce menorrhagia. It is currently first-line treatment for menorrhagia in the UK.</p> <p>Combined oral contraceptive pills can do the job as well but she has already stated that she would want a long term treatment with minimal side effects. Thus levonorgestrel intra-uterine system would be the most appropriate.</p> <p>Copper intrauterine contraceptive device and progestogen implants are more prone to have irregular heavy bleedings compared to levonorgestrel intra-uterine system (Mirena coil).</p> <p>Endometrial ablation does affect fertility and is not an appropriate management for a woman who may still want children in the future.</p>
48.	<p>A 16 year old girl who is normally fit and healthy attends her GP complaining of very painful menstrual periods. She has a regular 28 day menstrual cycle. She denies being sexually active. What is the SINGLE most appropriate management?</p> <p>A. Tranexamic acid B. Combined oral contraceptive pills C. Endometrial ablation D. Levonorgestrel intra-uterine system E. Mefenamic acid</p> <p>Dysmenorrhoea is very common among this age group. Mefenamic acid is usually the first tried management as the pain during periods may sometimes lessen over the next couple of months to years.</p> <p>Dysmenorrhoea Dysmenorrhoea can be divided into two:</p> <ul style="list-style-type: none">• Primary dysmenorrhoea: the pain has no obvious organic cause.• Secondary dysmenorrhoea: the pain is due to an underlying condition. <p>Primary dysmenorrhoea</p> <ul style="list-style-type: none">• <i>Management:</i><ul style="list-style-type: none">• NSAIDs such as mefenamic acid with each period is usually the first tried treatment• Combined oral contraceptive pills are used second line if the only symptom is pain• Mirena IUS demonstrates benefit <p>Secondary dysmenorrhoea</p> <ul style="list-style-type: none">• <i>Common aetiology</i><ul style="list-style-type: none">• Endometriosis• Adenomyosis• PID



	<ul style="list-style-type: none">• <i>Management</i> → Treat the underlying condition
49.	<p>A 38 year old female with lymphoma was treated with chemotherapy. She says she has been amenorrheic for the last 8 months. Lab results show:</p> <p>Follicle-stimulating hormone (FSH) 60 IU/L Luteinizing Hormone (LH) 77 IU/L Prolactin 13 ng/mL Oestradiol 26 pmol/L</p> <p>An FSH was repeated 4 weeks later was still elevated.</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Menopause B. Polycystic ovarian syndrome C. Prolactinoma D. Hypothyroidism E. Premature ovarian failure</p> <p>The diagnosis of premature ovarian failure usually needs two raised levels of FSH (more than 40 IU/L) taken at least four weeks apart. In this question, since she is amenorrheic with raised FSH and LH and a normal prolactin level, the most likely diagnosis would be premature ovarian failure. Women with premature ovarian failure also have low estradiol (usually < 50 pmol/l).</p> <p>Premature ovarian failure</p> <p>Premature ovarian failure (Premature ovarian insufficiency) is defined as the onset of menopausal symptoms and elevated gonadotropin levels before the age of 40 years. It occurs in around 1 in 100 women.</p> <p>Causes</p> <ul style="list-style-type: none">• Idiopathic - the most common cause• Chemotherapy (this can be temporary, as recovery of ovarian function can occur, especially in younger women)• Radiation• Autoimmune disease• Bilateral oophorectomy or surgical menopause <p>Presentation</p> <ol style="list-style-type: none">1. The most common presentation is amenorrhoea or oligomenorrhoea (which may not necessarily be accompanied by hot flashes)2. Infertility3. Other features are similar to those of the normal climacteric symptoms:<ul style="list-style-type: none">• Hot flashes



- Night sweats
- Irritability
- Poor concentration
- Decreased sex drive
- Dyspareunia
- Vaginal dryness

Tests:

FSH levels:

- FSH test should be undertaken in women aged under 40 years in whom menopause is suspected
- Two raised levels (more than 40 IU/L) taken at least four weeks apart are diagnostic

Serum follicle-stimulating hormone (FSH) measurement alone can be used to diagnose the disease. The anterior pituitary secretes FSH and LH at high levels due to the dysfunction of the ovaries and consequent low estrogen levels.

Management:

- hormone replacement therapy (HRT) until at least the average age of the menopause (51 years)

(The average age of the menopause in women in the UK is 51 years)

Important Notes:

Do NOT use early menopause and premature ovarian failure interchangeably

- The term early menopause is used for those women who go through their menopause between 40-45 years

Do NOT use premature menopause and premature ovarian failure interchangeably

- Premature ovarian failure is sometimes referred to as premature menopause, but the two conditions aren't exactly the same. Women with premature ovarian failure may have irregular or occasional periods for years and may even become pregnant. Women with premature menopause stop having periods and can't become pregnant



50. A 31 year old woman who is currently 39 weeks gestation attends the antenatal day unit feeling very unwell with sudden onset of epigastric pain associated with nausea and vomiting. She has a temperature of 36.7°C and her blood pressure is 155/100 mmHg. Her liver enzymes are raised and her other blood results are as follows:

Haemoglobin 82 g/L

White cell count $5 \times 10^9/L$

Platelets $90 \times 10^9/L$

What is the SINGLE most likely diagnosis?

A. Acute fatty liver of pregnancy

B. Acute pyelonephritis

C. Cholecystitis

D. HELLP syndrome

E. Acute hepatitis

HELLP syndrome

This is a serious complication regarded by most as a variant of severe pre-eclampsia which manifests with haemolysis (H), elevated liver enzymes (EL), and low platelets (LP).

Liver enzymes usually increase and platelets decrease before haemolysis occurs.

The syndrome is usually self-limiting, but permanent liver or renal damage may occur.

Note that eclampsia may co-exist.

Signs and Symptoms:

- Epigastric or RUQ pain and tenderness
- Nausea and vomiting
- Urine is 'tea-coloured' due to haemolysis.
- Increased BP and other features of pre-eclampsia

Management

- Delivery
- Supportive and as for eclampsia (magnesium sulfate ($MgSO_4$) is indicated)
- Although platelet levels may be very low, platelet infusions are only required if bleeding, or for surgery and <40



51.	<p>A 24 year old woman who is 18 weeks pregnant presents with pain in her lower abdomen for the past 12 hours. She has some vaginal spotting a couple of hours ago. On examination, abdomen is tender, and cervical os is closed. An ultrasound scan shows fetal heart beat. What is the SINGLE most likely diagnosis?</p> <p>A. Threatened miscarriage B. Inevitable miscarriage C. Incomplete miscarriage D. Missed miscarriage E. Spontaneous miscarriage</p> <p>A short summary of types of miscarriages that are commonly asked in PLAB</p> <p>Threatened miscarriage → Vaginal bleeding + fetal heart seen. Cervical os is closed</p> <p>Missed miscarriage (delayed miscarriage) → Dead fetus before 20 weeks without the symptoms of expulsion. May or may not have vaginal bleeding. Cervical os is closed.</p> <p>Inevitable miscarriage → Cervical os opened and bleeding</p> <p>Incomplete miscarriage - Not all products of conception have been expelled</p> <p>Complete miscarriage - Everything has been expelled</p>
52.	<p>A 31 year old girl presents to the infertility clinic with her husband. They have been trying to conceive for 3 years. Her BMI is 31. She has dark pigmentation on her neck and severe acne on her face. There is also thinning of hair. Blood test reveals elevated insulin levels, elevated LH levels and moderately elevated testosterone levels. What is the SINGLE most appropriate diagnostic test to confirm the diagnosis?</p> <p>A. CT abdomen B. Ultrasound pelvis C. Chest X-ray D. MRI pituitary E. Prolactin levels</p> <p>The most likely diagnosis here is Polycystic ovarian syndrome (PCOS). Elevated insulin levels, elevated LH levels and moderately elevated testosterone levels can be seen in PCOS. The scenario of acne on her face points towards an excess of androgens (Hirsutism, alopecia, acne are all manifestations of hyperandrogenism). And not to mention that her initial complaint was infertility which is one of the diagnostic criterion for PCOS.</p> <p>The dark pigmentation on her neck is called acanthosis nigricans which is characterised by brown to black hyperpigmentation of the skin found in body folds, such as the axilla, nape of the neck, groin is a marker of insulin resistance</p>



Ultrasound pelvis is the most appropriate as seeing 12 or more follicles on the ovaries can help make the diagnosis.

Polycystic ovarian syndrome (PCOS)

Polycystic ovary syndrome (PCOS) is a complex endocrine disorder with clinical features that include hirsutism and acne (due to excess androgens), oligomenorrhoea or amenorrhoea, and multiple cysts in the ovary.

Symptoms:

- irregular periods or no periods at all
- an increase in facial or body hair (hirsutism)
- loss of hair on your head
- being overweight, experiencing a rapid increase in weight or having difficulty losing weight
- oily skin, acne
- difficulty becoming pregnant (reduced fertility).

Diagnosis → Rotterdam consensus criteria

Two out of three of the following criteria being diagnostic of the condition:

1. Ultrasound → polycystic ovaries (either 12 or more follicles or increased ovarian volume)
2. oligo-ovulation or anovulation
3. clinical and/or biochemical signs of hyperandrogenism

General management

- Weight loss

Management for menstrual irregularities

- Weight loss
- COCP or cyclical progestogen or levonorgestrel intrauterine system.

Management of infertility

- Weight loss → weight loss alone may achieve spontaneous ovulation
- Clomifene Citrate
- If clomifene citrate fails, add on metformin or gonadotrophins or Laparoscopic ovarian drilling

Note regarding metformin:

- The RCOG published an opinion paper in 2008 and concluded that on current evidence metformin is not a first line treatment of choice in the management of PCOS
- Metformin is however still used, either combined with clomifene or alone, particularly in patients who are obese



53. A 31 year old woman has vaginal spotting after her last intercourse which was a day ago. Her last menstrual period was 10 days ago and she usually has a regular 28 day menstrual cycle. A cervical smear performed 6 months ago was shown to be normal. A speculum examination shows cervical ectropion which does not bleed on touch. What is the SINGLE most appropriate action?

- A. Transvaginal ultrasound
- B. Cervical smear
- C. Endocervical swab
- D. Reassurance**
- E. Serum estradiol

There is no screening test needed for cervical ectropion as cervical ectropion is not linked to the development of cervical cancer or any other condition that causes cancer. Treatment can be offered if the cervical ectropion is causing problems such as bleeding or pain during or after sex. However in this case, the cervix is not bleeding on touch thus no treatment is needed.

Cervical ectropion

- This occurs when the columnar epithelium of the endocervix is displayed beyond the os. The stratified squamous epithelium that normally lines the vaginal part of the cervix (ectocervix) is replaced by columnar epithelium, which has migrated from the endocervix.
 - The cervix enlarges under the influence of oestrogen and as a result the endocervical canal is everted. Exposure of high levels of oestrogen usually occurs at certain times (e.g. puberty, in pregnancy or women on COCP)
 - It is seen on examination as a red ring around the os and is so common as to be regarded as normal
 - It is generally an asymptomatic condition but patients occasionally present with bleeding or excessive discharge
 - The discharge if present is usually clear, watery in consistency and without odour
 - Once a normal cervical smear has been confirmed, it is actively managed only if there are symptoms.
 - After stopping any oestrogen-containing contraceptive, treatment options include diathermy, or cryotherapy

54. A 25 year old primigravida at 30 weeks' gestation comes to the maternity unit stating that 3 hours ago she had a gush of clear fluid from her vagina. She has no uterine contractions. She has a pulse rate of 94 beats/minute and a temperature of 38.4°C. Routine examination of the patient's abdomen reveals tenderness suprapubically. Speculum examination reveals a purulent yellow vaginal discharge with cervix slightly opened. Her blood test show:

Haemoglobin 115 g/L
White cell count 21 x 10⁹/L
Platelets 260 x 10⁹/L
CRP 253



	<p>What is the SINGLE most likely diagnosis?</p> <p>A. Endometritis B. Chorioamnionitis C. Septic miscarriage D. Pyelonephritis E. Threatened miscarriage</p> <p>Fever, maternal tachycardia, tenderness suprapubically and purulent vaginal discharge with history of ruptured membranes points towards chorioamnionitis.</p> <p>There is no indication of miscarriage here which is characterised by vaginal blood loss.</p> <p>Although endometritis is a possibility, this is a more common complication in the postpartum period.</p> <p>Chorioamnionitis Chorioamnionitis is an acute inflammation of the foetal amnion and chorion membranes, typically due to an ascending bacterial infection in the setting of membrane rupture.</p> <p>Features suggestive of chorioamnionitis</p> <ul style="list-style-type: none">• Fever• Abdominal pain, including contractions• Maternal pyrexia and tachycardia.• Uterine tenderness.• Fetal tachycardia• Maternal tachycardia.• Speculum: offensive vaginal discharge → yellow/brown
55.	<p>A 64 year old woman has been treated for breast cancer with tamoxifen. What SINGLE medication should be added to her regime?</p> <p>A. Bisphosphonates B. Calcium C. Vitamin D D. Calcitonin E. Phosphate binders</p> <p>There is actually no guideline that says any of the above medication should be started as an adjuvant to her regime. However, given the choices provided, bisphosphonates is probably the best choice as it is shown in some studies to reduce the risk of bone metastasis in breast cancers.</p>



56. A 68 year old nulliparous woman presents to her general practitioner with a six month history of poorly-localised abdominal discomfort and a constant feeling of bloatedness. On pelvic examination you find a nontender, 7 cm, solid, irregular, fixed, left adnexal mass. Her last examination was 1 year ago, which was normal, and it included a normal pap smear. What is the SINGLE most appropriate initial investigation?

A. CA-125

B. CA15-3

C. CA19-9

D. CEA

E. AFP

This is a classic presentation of ovarian cancer

Concerns should be raised with any pelvic mass that is identified after menopause. Ovaries in the postmenopausal age group should be atrophic, and anytime they are enlarged, the suspicion of ovarian cancer arises.

The term “nulliparous” was thrown into the question to help guide you towards the suspicion of ovarian cancer as nulliparity is a risk factor.

In a woman of this age with persistent symptoms of abdominal discomfort and bloating it is essential to consider the possibility of ovarian cancer. Due to the nonspecific nature of symptoms of this disease, you should have a low threshold for initiating investigations. Serum CA125 is a tumour marker that is used in the investigation of possible ovarian cancer, though it is not 100% sensitive or specific for this disease.

NICE guidelines state that serum CA 125 should be performed if a woman - especially if aged 50 years old or over - has any of the following symptoms on a regular basis:

- abdominal distension or 'bloating'
- early satiety or loss of appetite
- pelvic or abdominal pain
- increased urinary urgency and/or frequency

57. A 33 year old lady attends the obstetric assessment unit with a history of a positive pregnancy test and bleeding from her vagina for the last two days. Her last menstrual period is 8 weeks ago. On speculum examination, the cervical os is closed but blood is seen in the vault. What is the SINGLE most appropriate next step to determine the viability of the fetus?

A. Transvaginal Ultrasound

B. Serum β -hCG

C. Urinary β -hCG

D. Abdominal Ultrasound

E. Cardiotocography (CTG)

A transvaginal ultrasound is most specific to identify the viability of the fetus.



58. A 48 year old lady presents with itching, redness, bloody discharge and ulceration around her nipple. The lesion appears to be red and scaly. What is the SINGLE most likely diagnosis?

A. Paget's disease of the breast

B. Fibroadenosis

C. Breast abscess

D. Duct papilloma

E. Fat necrosis

Paget Disease of the Breast/Nipple

This is an uncommon breast malignancy with a generally better prognosis than infiltrating ductal carcinoma. The lesion is pruritic and appears red and scaly often located in the nipple spreading to the areola. The skin appearance can mimic dermatitis like eczema or psoriasis. The nipple may become inverted and discharge may occur.

Fibroadenosis (or fibrocystic disease) → is the most common cause of breast lumps in women of reproductive age. The peak incidence is between 35 and 50 years of age. It is a term used to describe a group of benign conditions that affect the breast. The symptoms of fibroadenosis include breast pain (mastalgia or mastodynia), increase in breast size and lumpiness of the breast (nodularity), particularly just before or during a period

Breast abscess → is suggested by a fluctuant lump, hot and tender, acute presentation often in puerperium, chronic after antibiotics.

Duct papilloma → is suggested by bleeding from nipple.

Fat necrosis → is suggested by a firm and solitary localized lump.

59. A 32 year old multigravida at 32 weeks' gestation is woken up in the middle of the night with a pool of blood. She has no pain or uterine contractions. Fetal heart tones are regular at 145 beats/min. Examination of the uterus shows the fetus to be in transverse lie. She has a pulse of 120 beats/minute, a blood pressure of 84/55 mmHg and a respiratory rate of 29 breaths/minute. What is the the SINGLE most likely diagnosis?

A. Abruptio of placenta secondary to pre-eclampsia

B. Placenta accreta

C. Placenta praevia

D. Preterm labor

E. Vasa praevia

Placenta praevia

Placenta praevia describes a placenta lying wholly or partly in the lower uterine segment. This is common early in the pregnancy, but is most often not associated with bleeding.

The key clinical feature is painless bleeding after 24 weeks of gestation.



	<p>Risk factors</p> <ul style="list-style-type: none">• previous placenta praevia• multiple pregnancies <p>Note: 5% will have low-lying placenta when scanned at 16-20 weeks gestation incidence at delivery is only 0.5%, therefore most placentas rise away from cervix</p> <p>Clinical features</p> <ul style="list-style-type: none">• Painless vaginal bleed• uterus not tender• lie and presentation may be abnormal• fetal heart usually normal <p>Note: the painless late-pregnancy bleeding may occur during rest or activity, suddenly and without warning. It may be preceded by trauma, coitus, or pelvic examination.</p> <p>Diagnosis</p> <p>This is based on the presence of painless late-trimester vaginal bleeding with an obstetric ultrasound showing placental implantation over the lower uterine segment.</p>
60.	<p>A 24 year old lady presents to the Early Pregnancy Unit with vaginal spotting and mild left-sided abdominal pain. Her last menstrual period was 8 weeks ago. A pregnancy test done in the GP clinic was positive. She has a transvaginal ultrasound scan, which is reported as 'inconclusive'. Serum human chorionic gonadotropin (hCG) is 1400 IU/litre. What is the SINGLE most likely diagnosis?</p> <p>(A serum hCG above 25 IU/litre is considered positive for pregnancy)</p> <p>A. Fibroids B. Ectopic pregnancy C. Complete miscarriage D. Threatened miscarriage E. Incomplete miscarriage</p> <p>The diagnosis here is ectopic pregnancy. The first clue here is the gestational age → 8 weeks. Ectopic pregnancies would usually present around 6-8 weeks from start of last period as it is then that they are large enough to stretch the fallopian tubes thus causing pain. The stretching of the fallopian tubes is also the reason why they may sometimes experience cervical motion tenderness on a vaginal examination.</p> <p>The second clue here is the unilateral abdominal pain. This gives us a clue that the pathology is towards one side rather than in the middle.</p> <p>The remaining choices are far less likely to be the correct answer</p>



	<p>Fibroids → In the past, fibroids could be the cause of an inconclusive scan as they may obstruct the view of the gestational sac. However, with the modern transvaginal scan this is no longer the case. And thus ectopic pregnancies are a more likely diagnosis here.</p> <p>Complete miscarriage - Is when all products of conception has been expelled. This is unlikely the case as she has only suffered a mild vaginal bleeding (vaginal spotting).</p> <p>Threatened miscarriage → Presents with vaginal bleeding + fetal heart is seen. A diagnosis of threatened miscarriage cannot be made without seeing a viable fetus on an ultrasound scan.</p> <p>Incomplete miscarriage → Not all products of conception have been expelled. This means that products of conception would still be visible on an ultrasound scan.</p> <p>Ectopic pregnancy</p> <p>Defined by the implantation of a fertilized ovum outside the uterus</p> <p>Clinical features</p> <ul style="list-style-type: none">• lower abdominal pain: typically the first symptom.• vaginal bleeding: usually less than a normal period• history of recent amenorrhoea: typically 6-8 weeks from start of last period• peritoneal bleeding can cause shoulder tip pain <p>Examination findings</p> <ul style="list-style-type: none">• abdominal tenderness• cervical excitation (also known as cervical motion tenderness)• adnexal mass may be noticed <p>Management:</p> <ul style="list-style-type: none">• A laparoscopic approach to the surgical management of tubal pregnancy, in the haemodynamically stable patient, is preferable to an open approach• Management of tubal pregnancy in the presence of haemodynamic instability should be by the most expedient method. In most cases this will be laparotomy.
61.	<p>A 33 year old female presents with sudden severe colicky abdominal pain at her right iliac fossa. The pain is severe and has worsen intermittently over the last few hours. The pain radiates to her back and pelvis. She has also been vomiting and feeling nauseous since the pain started. A tender, mobile mass is felt at the right iliac fossa on examination. What is the SINGLE most likely diagnosis?</p> <p>A. Pelvic inflammatory disease B. Appendicitis C. Ovarian torsion D. Constipation E. Gastroenteritis</p>



	<p>The likely diagnosis here is ovarian torsion. Although ovarian torsion cannot be diagnosed clinically as it is often diagnosed in theatre during a laparoscopy, the question writers want you to consider ovarian torsion as part of your differential diagnosis as it is one of the important gynaecologic emergencies. It is quite rare and only accounts for about 3% of gynaecologic emergencies however it is important to consider it especially given that this patient has a tender mobile mass at the right iliac fossa.</p> <p>In clinical practice, appendicitis would also be part of your differential. If there was a history of an ovarian mass or if a ultrasound pelvis was done which found an ovarian mass, then the surgeons would refer her to the gynaecology team to rule out an ovarian torsion.</p> <p>Ovarian torsion presents with sudden onset of sharp, unilateral lower abdominal pain often with nausea and vomiting.</p> <p>In the reproductive years, regular growth of large corpus luteal cysts are a risk factor for rotation. Basically, any enlargement of the ovary is a risk factor towards an ovarian torsion.</p> <p>The definitive diagnosis is often made in the theatre as ovarian torsion is difficult to diagnose accurately and operation is often performed before the diagnosis is made.</p>
62.	<p>A 32 year old rhesus negative woman whose previous pregnancy was complicated by rhesus isoimmunisation, now presents with vaginal spotting at 37 weeks. Her pregnancy has otherwise been normal. Her partner is rhesus positive. What is the SINGLE most appropriate investigation?</p> <p>A. Kleihauer-Betke test B. Coagulation profile C. Recheck mother's rhesus status D. Assess fetal middle cerebral artery on ultrasound E. Fetal blood sampling</p> <p>You would have to understand rhesus isoimmunization fully before you can proceed with this question. Firstly, the mother is already isoimmunized. This means that she has developed antibodies towards fetal red cells.</p> <p>A Kleihauer-Betke test would be useless at this point of time as the whole reason we do Kleihauer-Betke test is to determine how much Rh immunoglobulin to give to the patient to PREVENT Isoimmunization. In this question, the woman already is already isoimmunized! There is no point in giving Rh immunoglobulins to an already isoimmunised patient Kleihauer-Betke test would be appropriate in her first pregnancy before she developed immunity.</p> <p>There is no need to recheck mother's rhesus status as this would have been checked several times in her last pregnancy and this pregnancy.</p> <p>Fetal blood sampling is an option but is only indicated if the peak systolic velocity (PSV) of the middle cerebral artery (MCA) is abnormal.</p>



Thus, the answer to this question is assess fetal middle cerebral artery on ultrasound. By doing so we can assess severity of fetal anaemia.

Rhesus isoimmunization (immune hydrops)

Occurs when a maternal antibody response is mounted against fetal red cells. These immunoglobulin (IgG) antibodies cross the placenta and cause fetal red blood cell destruction. The ensuing anaemia, if severe, precipitates fetal hydrops, which is often referred to as immune hydrops.

If the mother is already isoimmunized, part of the management includes a measurement of the peak systolic velocity (PSV) of the fetal middle cerebral artery (MCA) seen on ultrasound about once a week. If this is abnormal, fetal blood sampling is indicated, with blood available for transfusion.

Rhesus negative pregnancy

A basic understanding of the pathophysiology is essential to understand Rhesus negative pregnancies.

If a Rh -ve mother delivers a Rh +ve child a leak of fetal red blood cells may occur, this causes anti-D IgG antibodies to form in mother. In later pregnancies these antibodies can cross placenta and cause haemolysis in fetus.

Prevention

- test for anti-D antibodies in all Rh -ve mothers at booking
- NICE (2008) advise giving anti-D to non-sensitised Rh -ve mothers at 28 and 34 weeks
- anti-D is prophylaxis - once sensitization has occurred it is irreversible

Anti-D immunoglobulin should be given as soon as possible (but always within 72 hours) in the following situations:

- delivery of a Rh +ve infant, whether live or stillborn
- any termination of pregnancy
- miscarriage if gestation is > 12 weeks
- ectopic pregnancy
- external cephalic version
- antepartum haemorrhage
- amniocentesis, chorionic villus sampling, fetal blood sampling

Affected fetus

- oedematous (hydrops fetalis, as liver devoted to RBC production albumin falls)
- jaundice, anaemia, hepatosplenomegaly
- treatment: transfusions, UV phototherapy



63. A 27 year old presents with left sided abdominal pain and vaginal spotting. Her last menstrual period was 7 weeks ago. Abdomen was tender to palpate and cervical motion tenderness was noticed on examination. Transvaginal ultrasound scan was performed which showed an empty uterus. Serum human chorionic gonadotropin (hCG) is 1200 IU/litre. Blood pressure is 110/65 mmHg, heart rate is 80 bpm and respiratory rate is 18/min. What is the SINGLE most appropriate next course of action?

(A serum hCG above 25 IU/litre is considered positive for pregnancy)

A. Immediate laparotomy

B. Laparoscopy

C. Discharge home

D. CT abdomen

E. Methotrexate

It is clear here that she has an ectopic pregnancy.

As she is haemodynamically stable, a laparoscopic approach to the surgical management of tubal pregnancy is warranted.

Laparotomy would be the choice if the patient is clearly haemodynamically unstable. The reason for this is laparotomy is quicker than a laparoscopy.

Methotrexate would be first line for an ectopic pregnancy if she was not in significant pain. Although systemic methotrexate is first line, it can only be used if it contains all the criteria below:

- Not in significant pain
- Adnexal mass smaller than 35mm with no fetal heart visible
- Serum hCG less than 1500 IU/litre
- Able to return for follow-up

It is unlikely that the examiners for PLAB expect you to know these criteria thus methotrexate is unlikely to be the answer in PLAB.

Ectopic pregnancy

Defined by the implantation of a fertilized ovum outside the uterus

Clinical features

- lower abdominal pain: typically the first symptom.
- vaginal bleeding: usually less than a normal period
- history of recent amenorrhoea: typically 6-8 weeks from start of last period
- peritoneal bleeding can cause shoulder tip pain

Examination findings

- abdominal tenderness
- cervical excitation (also known as cervical motion tenderness)
- adnexal mass may be noticed



	<p>Management:</p> <ul style="list-style-type: none">• A laparoscopic approach to the surgical management of tubal pregnancy, in the haemodynamically stable patient, is preferable to an open approach• Management of tubal pregnancy in the presence of haemodynamic instability should be by the most expedient method. In most cases this will be laparotomy.
64.	<p>A 25 year old lady has had an uncomplicated pregnancy so far. She is now 39 weeks gestation. She was admitted because she had of a show and has regular and painful uterine contractions. Her cervix is now 10 cm dilated and she has started pushing. What stage of labour is she in?</p> <p>A. First stage B. Second stage C. Third stage D. Fourth stage E. Latent phase</p> <p>Labour may be divided into three stages</p> <ul style="list-style-type: none">• stage 1: from the onset of true labour to when the cervix is fully dilated. It is divided into a latent and an active phase. Latent phase → begins with onset of regular contractions and ends with the acceleration of cervical dilation. Active phase → begins with cervical dilation acceleration, usually at 3-4 cm of dilation, ending with complete cervical dilation.• stage 2: from full dilation to delivery of the fetus• stage 3: from delivery of fetus to when the placenta and membranes have been completely delivered <p>Signs of labour include</p> <ul style="list-style-type: none">• regular and painful uterine contractions• a show (shedding of mucous plug)• rupture of the membranes (not always)• shortening and dilation of the cervix
65.	<p>A 38 week pregnant woman has sudden onset of uterine pain and vaginal bleeding. Her uterus is tender and hard. She has no previous history of a lower segment caesarean section. Fetal distress is noted on CTG. Her blood pressure is 95/60 mmHg. What is the SINGLE most likely cause of her symptoms?</p> <p>A. Preeclampsia B. Disseminated intravascular coagulation C. Placental abruption D. Placenta praevia E. Vasa praevia</p>



	<p>Placental abruption</p> <p>Placental abruption Is the premature separation of a normally placed placenta. It describes separation of a normally sited placenta from the uterine wall, resulting in maternal haemorrhage into the intervening space</p> <p>The cause is not known but associated factors include:</p> <ul style="list-style-type: none">• proteinuric hypertension• multiparity• maternal trauma• increasing maternal age <p>Clinical features</p> <ul style="list-style-type: none">• Pain is constant• Very tender and tense uterus• Bleeding, which may be accompanied by pain• fetal heart: may be distressed• If the bleeding is severe, the mother may show signs of hypovolaemic shock; however, young, fit, pregnant women can compensate very well until sudden and catastrophic decompensation occurs <p>Note: Severe abruption can result in haemorrhagic shock with acute tubular necrosis from profound hypotension, and DIC from release of tissue thromboplastin into the general circulation from the disrupted placenta.</p>
66.	<p>A 32 year old woman, primigravida and now 39 weeks gestation attends the antenatal day unit with sudden onset of epigastric pain associated with nausea and vomiting. On physical examination, there is right upper quadrant tenderness. Her temperature is 36.8°C, Blood pressure is 165/95, heart rate 90 bpm and respiratory rate 19/min. Her blood tests show:</p> <p>Haemoglobin 87 g/L Platelets 90 x 10⁹/L Alanine transferase 219 U/L Aspartate transaminase 180 U/L Lactate dehydrogenase 720 U/L</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Acute fatty liver of pregnancy B. Acute pyelonephritis C. Cholecystitis D. HELLP syndrome E. Acute hepatitis</p> <p>Increased LDH level suggest haemolysis. The decreased haemoglobin level, elevated liver enzymes and low platelets give rise to the diagnosis of HELLP syndrome. This is supported by</p>



	<p>the fact that she has a high BP and has epigastric pain that is associated with nausea and vomiting.</p> <p>HELLP syndrome</p> <p>This is a serious complication regarded by most as a variant of severe pre-eclampsia which manifests with haemolysis (H), elevated liver enzymes (EL), and low platelets (LP).</p> <p>Liver enzymes usually increase and platelets decrease before haemolysis occurs.</p> <p>The syndrome is usually self-limiting, but permanent liver or renal damage may occur.</p> <p>Note that eclampsia may co-exist.</p> <p>Signs and Symptoms:</p> <ul style="list-style-type: none">• Epigastric or RUQ pain and tenderness• Nausea and vomiting• Urine is 'tea-coloured' due to haemolysis.• Increased BP and other features of pre-eclampsia <p>Management</p> <ul style="list-style-type: none">• Delivery• Supportive and as for eclampsia (magnesium sulfate (MgSO_4) is indicated)• Although platelet levels may be very low, platelet infusions are only required if bleeding, or for surgery and <40
67.	<p>A 29 year old primigravida at 28 weeks gestation is found to have a blood pressure of 150/100 mmHg on routine check-up. She is not experiencing any symptoms and feels well. A urinalysis shows 1+ protein. What is the SINGLE best management for her?</p> <p>A. Labetalol B. Hydralazine C. Indapamide D. Losartan E. Magnesium sulphate</p> <p>Labetalol is the most studied antihypertensive in pregnancy with the safest profile.</p> <p>According to current NHS guidelines IV magnesium sulphate is administered for:</p> <ul style="list-style-type: none">• Women in a critical care setting who have severe hypertension or severe pre-eclampsia who have or previously had an eclamptic fit.• Women with severe preeclampsia who are in a critical care setting if birth is planned within 24 hours. <p>This woman, although having a very high blood pressure, does not fulfill the criteria for magnesium sulphate treatment</p> <p>Pre-eclampsia</p>



Pre-eclampsia is a condition seen after 20 weeks gestation characterised by pregnancy-induced hypertension in association with proteinuria ($> 0.3\text{g} / 24 \text{ hours}$). Oedema used to be third element of the classic triad but is now often not included in the definition as it is not specific.

Risk factors

- > 40 years old or teenager
- Family history (mother or sister)
- Obesity
- Multiple pregnancy
- Nulliparity
- Pre-existing hypertension or diabetes
- Previous history of pre-eclampsia

Symptoms

- Headache
- Visual disturbance (flashing lights)
- Epigastric or right upper quadrant (RUQ) pain
- Nausea and vomiting
- Rapid oedema (especially on the face)

Note: Symptoms usually occur only with severe disease

Signs

- Hypertension ($>140/90$; severe if $\geq 160/110$).
- Proteinuria ($>300 \text{ mg}$ in 24 hours)
- Hyperreflexia

Management

- Guidelines recommend treating blood pressure $> 150/100 \text{ mmHg}$ although many clinicians have a lower threshold.
- Oral labetalol is now first-line following the 2010 NICE guidelines. Nifedipine and hydralazine would also be an option if PLAB part 1 has them in the question.
- Cure is delivery of placenta. Thus the definitive management is to deliver baby. Unfortunately this needs to be balanced out with gestation as we would not want to deliver a baby too prematurely.



68.	<p>A 25 year old women had an emergency lower segment caesarean section after a prolonged labour 4 days ago due to fetal distress. She now complains of intermittent vaginal bleeding and foul smelling discharge. Her O2 saturation is 98% on air, blood pressure is 124/88 mmHg, pulse of 84bpm and temperature of 37.9C. The midwife tells you that the obstetric surgeons had difficulty in removing the placenta from the uterus in the operating theatre. What is the SINGLE most likely complication of this women from the caesarean section?</p> <p>A. Retained products of conception B. Aspiration pneumonitis C. Endometritis D. Uterine rupture E. Disseminated intravascular coagulation</p> <p>Although retained products of conception may be an option. Endometritis fits more perfectly with the scenario given the fever, the history of an emergency C-section, prolonged labour and the foul discharge.</p> <p>Uterine infection (endometritis) Is the most common cause of postpartum fever</p> <p>Predisposing factors</p> <ul style="list-style-type: none">• Emergency caesarean section• Prelabour rupture of membranes• Prolonged labour• Multiple pelvic examinations.• Internal fetal monitoring - use of scalp electrodes/ intrauterine <p>Signs and symptoms</p> <ul style="list-style-type: none">• Fever usually in proportion to the extent of infection.• Foul smelling, profuse, and bloody discharge.• Tender bulky uterus on abdominal examination <p>Management</p> <ul style="list-style-type: none">• Antibiotics
69.	<p>A 33 year old woman complains of waking in the middle of the night to rush to the toilet. Most of the time, she does not make it to the toilet in time and she wets herself. What is the SINGLE most likely diagnosis?</p> <p>A. Stress incontinence B. Urge incontinence C. Mixed incontinence D. Overflow incontinence E. Urethrovaginal fistula</p>



	<p>This is the common presentation of urge incontinence. See below for the description of the types of urinary incontinence:</p> <p>Urge incontinence / overactive bladder (OAB) → is due to detrusor over activity. Common complain is “when I have to go to the toilet, I really have to go” or “I have the desire to pass urine and sometimes urine leaks before I have time to get to the toilet”</p> <p>Stress incontinence → leaking small amounts of urine when coughing or laughing. Usually with a history of many vaginal deliveries as this would weaken the pelvic floor muscles.</p> <p>Mixed incontinence → a mix of both urge and stress incontinence</p> <p>Overflow incontinence → involuntary release of urine from an overfull urinary bladder, often in the absence of any urge to urinate. Occurs in people who have a blockage of the bladder outlet (benign prostatic hyperplasia, prostate cancer, or narrowing of the urethra), or when the muscle that expels urine from the bladder is too weak to empty the bladder normally.</p> <p>Urethrovaginal fistula → Opening between vagina and urethra. Common complaint is “ there is continual leakage of urine from my vagina” or “my vagina has a foul smell”.</p>
70.	<p>A 29 year old woman has chronic pelvic pain, and dysmenorrhoea over the last 9 months in which she takes NSAIDS for. She complains of pain during sexual intercourse. A trial of combined oral contraceptive pills was given but there was no reported benefit. A pelvic ultrasound was reported as normal. What is the SINGLE most definitive diagnostic test?</p> <p>A. Laparoscopy B. CA 125 C. Computed tomography scan D. Magnetic resonance imaging E. Hysteroscopy</p> <p>The likely diagnosis here is endometriosis. A laparoscopy would is the gold standard to diagnosis it. A laparoscopy would also be able to identify any other pathologies that may be causing the chronic pelvic pain such as adhesions.</p> <p>Serum CA125 may be seen elevated with endometriosis, however there is no evidence that it is a useful screening test for this endometriosis</p> <p>Endometriosis</p> <p>Endometriosis is the presence of endometrial-like tissue outside the uterine cavity. It is oestrogen dependent, and therefore mostly affects women during their reproductive years. If the ectopic endometrial tissue is within the myometrium itself it is called adenomyosis.</p> <p>Up to 10-12% of women have a degree of endometriosis</p>



	<p>Clinical features</p> <ul style="list-style-type: none">• Chronic pelvic pain (cyclic or constant)• Dysmenorrhoea - pain often starts days before bleeding• Deep dyspareunia (indicates possible involvement of uterosacral ligaments)• Subfertility <p>Investigation</p> <ul style="list-style-type: none">• Laparoscopy is the gold-standard investigation• Transvaginal ultrasound scanning appears to be a useful test, both to make and to exclude the diagnosis of an ovarian endometrioma <p>Management</p> <ul style="list-style-type: none">• NSAIDs to treat pain• Combined oral contraceptive pill (other hormonal drugs can be used too)• Levonorgestrel intrauterine system <p>Note: Drug therapy unfortunately does not seem to have a significant impact on fertility rates</p> <p>Surgery</p> <ul style="list-style-type: none">• Laparoscopic excision and ablation of endometrioid lesions helps reduce endometriosis-associated pain. Laparoscopic excision and ablation of endometriotic ovarian cysts may improve fertility.
71.	<p>A 33 year old lady presents with clear, watery discharge. On examination, a red ring is seen around the cervical os. The diagnosis of cervical ectropion is made. What is the SINGLE most accurate description to define cervical ectropion?</p> <p>A. Replacement of stratified squamous epithelium that normally lines ectocervix by columnar epithelium</p> <p>B. Replacement of columnar epithelium that normally lines ectocervix by stratified squamous epithelium</p> <p>C. Columnar epithelium migrating from ectocervix to endocervix</p> <p>D. Cuboidal cells being replaced by squamous epithelial cells</p> <p>E. Non-keratinized stratified squamous epithelium being replaced by simple cuboidal epithelium</p> <p>Cervical ectropion</p> <ul style="list-style-type: none">• This occurs when the columnar epithelium of the endocervix is displayed beyond the os. The stratified squamous epithelium that normally lines the vaginal part of the cervix (ectocervix) is replaced by columnar epithelium, which has migrated from the endocervix.<ul style="list-style-type: none">• The cervix enlarges under the influence of oestrogen and as a result the endocervical canal is everted. Exposure of high levels of oestrogen usually occurs at certain times (e.g. puberty, in pregnancy or women on COCP)• It is seen on examination as a red ring around the os and is so common as to be regarded as normal



	<ul style="list-style-type: none">• It is generally an asymptomatic condition but patients occasionally present with bleeding or excessive discharge• The discharge if present is usually clear, watery in consistency and without odour• Once a normal cervical smear has been confirmed, it is actively managed only if there are symptoms.• After stopping any oestrogen-containing contraceptive, treatment options include diathermy, or cryotherapy
72.	<p>A 23 year old woman is followed up for 6 weeks after a surgical procedure to evacuate the products of conception in the uterus following a miscarriage. The histology shows changes consistent with a hydatidiform mole. What is the SINGLE most appropriate investigations in this case?</p> <p>A. Abdominal Ultrasound B. Maternal karyotype C. Paternal blood group D. Serum B-hCG E. Transvaginal US</p> <p>Serum and urine samples of hCG concentrations are extremely important.</p> <p>In hydatidiform mole, hCG levels are likely to be raised excessively (especially in complete moles). Management would involve surgical evacuation, after which the hCG levels are expected to return to a normal, non-pregnant level.</p> <p>We would like the hCG to go down towards a normal level but If it plateaued or if hCG levels rise after evacuation, chemotherapy is indicated.</p> <p>This is the reason it is so important not to get pregnant during the time that hCG levels are decreasing as if one were to get pregnant, hCG levels would increase again and we will not know if it is due to the hydatidiform mole or the new pregnancy.</p> <p>Gestational Trophoblastic Disease</p> <p>Gestational trophoblastic disease (GTD) covers a spectrum of diseases caused by overgrowth of the placenta. It ranges from molar pregnancies to malignant conditions such as choriocarcinoma. If there is any evidence of persistence of GTD the condition is referred to as gestational trophoblastic neoplasia (GTN).</p>



GTD is classified as follows:

Premalignant - hydatidiform mole

- Complete hydatidiform mole (CHM)
- Partial hydatidiform mole (PHM)

Malignant - gestational trophoblastic neoplasia (GTN)

- Invasive mole
- Choriocarcinoma
- Placental site trophoblastic tumour (PSTT)
- Epithelioid trophoblastic tumour (ETT)

The classification of GTD is less important. An exam of this level usually does not require you to know details of types of GTD.

Features:

- Hyperemesis
- Irregular first-trimester vaginal bleeding
- Uterus large for dates
- Vaginal passage of vesicles containing products of conception
- Serum hCG is excessively high with complete moles, but levels may be within the normal range for partial moles.

Ultrasound findings of a complete mole

- 'Snowstorm' appearance of mixed echogenicity, representing hydropic villi and intrauterine haemorrhage
- Large theca lutein cysts

Management of Hydatidiform mole:

- Surgical evacuation (Suction curettage)
 - Note that histological examination of products of conception is essential to confirm diagnosis
- Two-weekly serum and urine samples until hCG concentrations are normal.
 - Women should be advised not to conceive until hCG level has been normal for 6 months
 - Barrier contraception should be used until serum hCG is normal
 - COCP and HRT are safe to use after hCG levels have returned to normal

Management of gestational trophoblastic neoplasia (GTN)

This is unlikely to be asked in detail in PLAB 1 due to the complexity of the management. But you do need to know it involves chemotherapy



73.	<p>A 65 year old female patient diagnosed with breast cancer was given tamoxifen. Which SINGLE symptoms would be the most alarming?</p> <p>A. Fluid retention B. Vaginal bleeding C. Hot flushes D. Headache and dizziness E. Weight gain</p> <p>Tamoxifen is a risk factor for endometrial carcinoma. So vaginal bleeding will be of concern for us.</p> <p>Endometrial cancer</p> <p>Endometrial cancer is classically seen in post-menopausal women</p> <p>Risk factors for endometrial cancer:</p> <ul style="list-style-type: none">• Obesity• Nulliparity• Early menarche• Late menopause• Unopposed oestrogen. The addition of a progestogen to oestrogen reduces this risk (e.g. In HRT). The BNF states that the additional risk is eliminated if a progestogen is given continuously• Diabetes mellitus• Tamoxifen• Polycystic ovarian syndrome <p>Features</p> <p>In PLAB, they will always present with postmenopausal bleeding</p> <p>Investigation</p> <ul style="list-style-type: none">• First-line investigation is trans-vaginal ultrasound - a normal endometrial thickness (< 4 mm) has a high negative predictive value• Hysteroscopy with endometrial biopsy gives the definitive diagnosis <p>Management</p> <p>Is beyond the scope for PLAB. Remember, PLAB is an easy test.</p>
74.	<p>A 33 year old woman, with 3 previous normal vaginal deliveries complains of urinary leakage when she plays tennis or coughs. What is the SINGLE most likely diagnosis?</p> <p>A. Stress incontinence B. Urge incontinence C. Mixed incontinence D. Overflow incontinence E. Urethrovaginal fistula</p>



	<p>Urge incontinence / overactive bladder (OAB) → is due to detrusor over activity. Common complain is “when I have to go to the toilet, I really have to go” or “I have the desire to pass urine and sometimes urine leaks before I have time to get to the toilet”</p> <p>Stress incontinence → leaking small amounts of urine when coughing or laughing. Usually with a history of many vaginal deliveries as this would weaken the pelvic floor muscles.</p> <p>Mixed incontinence → a mix of both urge and stress incontinence</p> <p>Overflow incontinence → involuntary release of urine from an overfull urinary bladder, often in the absence of any urge to urinate. Occurs in people who have a blockage of the bladder outlet (benign prostatic hyperplasia, prostate cancer, or narrowing of the urethra), or when the muscle that expels urine from the bladder is too weak to empty the bladder normally.</p> <p>Urethrovaginal fistula → Opening between vagina and urethra. Common complaint is “there is continual leakage of urine from my vagina” or “my vagina has a foul smell”.</p>
75.	<p>A 23 year old lady with a BMI of 30 complains of facial hair growth and has a history of amenorrhoea.</p> <p>Lab results show:</p> <p>Follicle-stimulating hormone (FSH) 22 IU/L Luteinizing Hormone (LH) 54 IU/L Prolactin 60 ng/mL Oestradiol 117 pmol/L Progesterone 100 ng/dL</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Polycystic ovary syndrome B. Pregnancy C. Cushing’s disease D. Congenital adrenal hyperplasia E. Premature ovarian failure</p> <p>Obese, amenorrhoea and hirsutism are consistent with Polycystic ovary syndrome (PCOS).</p> <p>She has high LH, normal FSH and slightly high prolactin levels. These are not diagnostic for PCOS but among the choices given, the lab results reflect PCOS.</p> <p>Serum LH levels are elevated in approximately 40% of women with PCOS, owing to increased production (increased amplitude and frequency of LH pulses)</p> <p>Prolactin may be mildly elevated in PCOS. It has been described by some authors that women with polycystic ovary syndrome (PCOS) may have elevated levels of prolactin. However, a</p>



diagnostic criterion is to rule out other possible causes, including hyperprolactinemia. This is because high prolactin levels have many of the same symptoms as PCOS and needs to be ruled out to be certain of a PCOS diagnosis.

Polycystic ovarian syndrome (PCOS)

Polycystic ovary syndrome (PCOS) is a complex endocrine disorder with clinical features that include hirsutism and acne (due to excess androgens), oligomenorrhoea or amenorrhoea, and multiple cysts in the ovary.

Symptoms:

- irregular periods or no periods at all
- an increase in facial or body hair (hirsutism)
- loss of hair on your head
- being overweight, experiencing a rapid increase in weight or having difficulty losing weight
- oily skin, acne
- difficulty becoming pregnant (reduced fertility)

Diagnosis → Rotterdam consensus criteria

Two out of three of the following criteria being diagnostic of the condition:

1. Ultrasound → polycystic ovaries (either 12 or more follicles or increased ovarian volume)
2. oligo-ovulation or anovulation
3. clinical and/or biochemical signs of hyperandrogenism

General management

- Weight loss

Management for menstrual irregularities

- Weight loss
- COCP or cyclical progestogen or levonorgestrel intrauterine system.

Management of infertility

- Weight loss → weight loss alone may achieve spontaneous ovulation
- Clomifene Citrate
- If clomifene citrate fails, add on metformin or gonadotrophins or Laparoscopic ovarian drilling

Note regarding metformin:

- The RCOG published an opinion paper in 2008 and concluded that on current evidence metformin is not a first line treatment of choice in the management of PCOS
- Metformin is however still used, either combined with clomifene or alone, particularly in patients who are obese



76.	<p>A 23 year old woman comes to the A&E with severe lower abdominal pain. Her blood pressure is 120/85 mmHg and temperature is 38.9°C. The abdomen is rigid. Cervical excitation is noticed during a vaginal examination. She gave a past history of pelvic inflammatory disease 3 years ago which was successfully treated with antibiotics. What is the SINGLE most appropriate investigation?</p> <p>A. Ultrasound B. Abdomen X-ray C. CT Abdomen D. High vaginal swab E. Endocervical swab</p> <p>The possible diagnosis here is a pelvic abscess or tubo-ovarian abscess which are complications of PID. A high vaginal swab or endocervical swab can take days to return with results. As this is a A&E case, an ultrasound would be more appropriate as this would lead to a diagnosis.</p> <p>Ultrasound scan is the diagnostic imaging method of choice for acute pelvic pain in gynaecology. It can easily diagnose sequelae of PID (including pyosalpinx and tubo-ovarian abscess).</p> <p>Note that even if no PID history was given in this question, an ultrasound scan would still be the most appropriate as it would rule out ovarian cyst or adnexal torsion.</p>
77.	<p>A 37 year old woman has irregular menstrual cycles for the last 9 months accompanied by hot flashes and night sweats. She also complains of pain during sexual intercourse. What is the SINGLE most appropriate initial investigation?</p> <p>A. Serum estradiol concentration B. Serum FSH C. Serum progesterone concentration D. Dual-energy X-ray absorptiometry (DEXA) E. Anti-Mullerian hormone</p> <p>Serum follicle-stimulating hormone (FSH) measurement alone can be used to diagnose premature ovarian failure</p> <p>Note that Anti-Mullerian hormone can also be used to help diagnose premature ovarian failure as it is a measure of reduced ovarian reserve. However, it is usually only undertaken if there is diagnostic uncertainty.</p>



Premature ovarian failure

Premature ovarian failure (Premature ovarian insufficiency) is defined as the onset of menopausal symptoms and elevated gonadotropin levels before the age of 40 years. It occurs in around 1 in 100 women.

Causes

- Idiopathic - the most common cause
- Chemotherapy (this can be temporary, as recovery of ovarian function can occur, especially in younger women)
- Radiation
- Autoimmune disease
- Bilateral oophorectomy or surgical menopause

Presentation

1. The most common presentation is amenorrhoea or oligomenorrhoea (which may not necessarily be accompanied by hot flushes)
2. Infertility
3. Other features are similar to those of the normal climacteric symptoms:
 - Hot flashes
 - Night sweats
 - Irritability
 - Poor concentration
 - Decreased sex drive
 - Dyspareunia
 - Vaginal dryness

Tests:

FSH levels:

- FSH test should be undertaken in women aged under 40 years in whom menopause is suspected
- Two raised levels (more than 40 IU/L) taken at least four weeks apart are diagnostic

Serum follicle-stimulating hormone (FSH) measurement alone can be used to diagnose the disease. The anterior pituitary secretes FSH and LH at high levels due to the dysfunction of the ovaries and consequent low estrogen levels.

Management:

- hormone replacement therapy (HRT) until at least the average age of the menopause (51 years)

(The average age of the menopause in women in the UK is 51 years)



	<p>Important Notes:</p> <p><u>Do NOT use early menopause and premature ovarian failure interchangeably</u></p> <ul style="list-style-type: none">The term early menopause is used for those women who go through their menopause between 40-45 years <p><u>Do NOT use premature menopause and premature ovarian failure interchangeably</u></p> <ul style="list-style-type: none">Premature ovarian failure is sometimes referred to as premature menopause, but the two conditions aren't exactly the same. Women with premature ovarian failure may have irregular or occasional periods for years and may even become pregnant. Women with premature menopause stop having periods and can't become pregnant.
78.	<p>A 28 year old woman at 31 weeks gestation attends the antenatal clinic. Her full blood count was taken when she was 28 weeks which results shows:</p> <p>Haemoglobin 10.6 g/dL Mean cell volume 96 fL Mean cell haemoglobin concentration 350 g/L</p> <p>What is the SINGLE most appropriate management?</p> <p>A. Offer folate supplements B. Offer iron dextran C. Offer ferrous sulphate D. Explain that this is physiological haemodynamic anaemia E. Offer vitamin B12 supplements</p> <p>The values of anaemia differ in pregnancy as compared to a non pregnant women.</p> <p>The British Committee for Standards in Haematology has defined anaemia in pregnancy as the following values Hb levels of: <11.0g/dl in the first trimester <10.5 g/dl in the second and third trimesters <10.0 g/dl in the postpartum period.</p> <p>Since her Hb level is above 10.5g/dL, she does not need iron tablets.</p> <p>This is one of the questions that differ in terms of how you answer in PLAB and how you would act in real life. While the British Committee of Standards in Haematology have gave strict definitions of when to give iron tablets, in real life, many gynaecologist would have prescribed iron tablets in this case. Again, it depends on hospital guidelines. But for the PLAB test, it is important to follow national guidelines.</p>
79.	<p>A 24 year old woman who is 15 weeks pregnant presents with pain in her lower abdomen for the past couple of hours. She has some vaginal spotting. On examination, abdomen is tender, and cervical os is closed. A transvaginal ultrasound scan shows no fetal heartbeat or fetal activity. What is the SINGLE most likely diagnosis?</p>



	<p>A. Threatened miscarriage B. Inevitable miscarriage C. Incomplete miscarriage D. Missed miscarriage E. Spontaneous miscarriage</p> <p>It is important to note that missed miscarriage may present with heavy vaginal bleeding or none at all. But if there is no fetal heart seen, at this stage of pregnancy, it is a missed miscarriage. Note that in normal pregnancy the fetal heart is seen usually at 6 weeks. So you should not be diagnosing a missed miscarriage if a 4 week pregnant lady has no fetal heartbeat seen on a transvaginal ultrasound.</p> <p>There are more specific ultrasound criterias to diagnose missed miscarriage but are beyond what will be asked in PLAB part 1.</p> <p>A short summary of types of miscarriages that are commonly asked in PLAB</p> <p>Threatened miscarriage → Vaginal bleeding + fetal heart seen. Cervical os is closed</p> <p>Missed miscarriage (delayed miscarriage) → Dead fetus before 20 weeks without the symptoms of expulsion. May or may not have vaginal bleeding. Cervical os is closed.</p> <p>Inevitable miscarriage → Cervical os opened and bleeding</p> <p>Incomplete miscarriage - Not all products of conception have been expelled</p> <p>Complete miscarriage - Everything has been expelled</p>
80.	<p>A 50 year old woman who was treated for breast cancer 3 years ago now presents with increased thirst and confusion. She has recently become very drowsy. What is the SINGLE most likely metabolic abnormality?</p> <p>A. Hypercalcaemia B. Hyperkalaemia C. Hypoglycaemia D. Hyperglycaemia E. Hypocalcaemia</p> <p>The most common causes of hypercalcaemia are malignancy and primary hyperparathyroidism. In this scenario, breast cancer has metastasis to the bone. Bone metastases are one of most common causes of hypercalcaemia.</p> <p>This is a hot topic in PLAB and you should be able to associate breast cancer with bone metastases and hypercalcaemia.</p> <p>Clinical features of hypercalcaemia</p>



	<ul style="list-style-type: none">• Neurologic: Hypercalcemia results in decreased mental activity such as lethargy and confusion.• Gastrointestinal: Hypercalcemia results in decreased bowel activity such as constipation and anorexia but commonly gives nausea and vomiting as well.• Renal: Hypercalcemia results in polyuria and polydipsia because of the induction of nephrogenic diabetes insipidus. Calcium also precipitates in the kidney, resulting in both kidney stones as well as nephrolithiasis.• Cardiovascular: Hypertension occurs in 30-50% of those with hypercalcemia. The ECG will show a short QT.
81.	<p>A 60 year old woman complains of bleeding after having intercourse. In the past month, she has had 3 episodes of mild vaginal bleeding. She had regular withdrawal bleeds until 8 years ago and has not had a bleeding since. Her last cervical smear was 3 years ago which showed no abnormalities. A pelvic examination shows a normal cervix and vagina. What is the SINGLE most likely diagnosis?</p> <p>A. Cervical cancer B. Endometrial cancer C. Ovarian cancer D. Breast cancer E. Vaginal cancer</p> <p>The idea here is to think of endometrial cancer. Any women who has postmenopausal bleeding should have a transvaginal ultrasound to determine the endometrial thickness. If the endometrium is thick, hysteroscopy with endometrial biopsy would be arranged.</p> <p>A cervical smear is offered every 5 years in the UK if in the age group of 50 to 64 years old. Thus, having a cervical smear that was normal 3 years ago is a usual phenomenon. A repeat cervical smear is not necessary.</p> <p>Endometrial cancer</p> <p>Endometrial cancer is classically seen in post-menopausal women. Classically, endometrial cancer presents as postmenopausal bleeding (PMB) and, although this is not the only cause, it must be excluded.</p> <p>Risk factors for endometrial cancer:</p> <ul style="list-style-type: none">• Obesity• Nulliparity• early menarche• late menopause• unopposed oestrogen. The addition of a progestogen to oestrogen reduces this risk (e.g. In HRT). The BNF states that the additional risk is eliminated if a progestogen is given continuously



	<ul style="list-style-type: none">• diabetes mellitus• tamoxifen• polycystic ovarian syndrome <p>Features In PLAB, they will always present with postmenopausal bleeding</p> <p>Investigation</p> <ul style="list-style-type: none">• first-line investigation is trans-vaginal ultrasound - a normal endometrial thickness (< 4 mm) has a high negative predictive value• hysteroscopy with endometrial biopsy gives the definitive diagnosis <p>Management Is beyond the scope for PLAB. Remember, PLAB is an easy test.</p>
82.	<p>A 55 year old woman presents with a sore nipple. She has clear fluid discharge from her left nipple over the past few months which has recently been a little blood stained. On examination, her left nipple is dry cracked and has scaly skin. Her right nipple appears normal and no lymphadenopathy was seen. What is the SINGLE most likely diagnosis?</p> <p>A. Paget's disease of the breast B. Fibroadenosis C. Breast abscess D. Duct papilloma E. Fat necrosis</p> <p>Paget Disease of the Breast/Nipple</p> <p>This is an uncommon breast malignancy with a generally better prognosis than infiltrating ductal carcinoma. The lesion is pruritic and appears red and scaly often located in the nipple spreading to the areola. The skin appearance can mimic dermatitis like eczema or psoriasis. The nipple may become inverted and discharge may occur.</p> <p>Fibroadenosis (or fibrocystic disease) → is the most common cause of breast lumps in women of reproductive age. The peak incidence is between 35 and 50 years of age. It is a term used to describe a group of benign conditions that affect the breast. The symptoms of fibroadenosis include breast pain (mastalgia or mastodynia), increase in breast size and lumpiness of the breast (nodularity), particularly just before or during a period</p> <p>Breast abscess → is suggested by a fluctuant lump, hot and tender, acute presentation often in puerperium, chronic after antibiotics.</p> <p>Duct papilloma → is suggested by bleeding from nipple.</p> <p>Fat necrosis → is suggested by a firm and solitary localized lump.</p>



83. A 28 year old female has had 3 consecutive miscarriages. All her miscarriages happened before 10 weeks. Cytogenetic analysis performed on products of conception of the third miscarriage shows no abnormalities. She comes to clinic inquiring if it is safe for another pregnancy. What is the SINGLE most appropriate investigation to perform?

A. Antiphospholipid antibodies

- B. Parental peripheral blood karyotyping
- C. Progesterone levels
- D. Luteinizing hormone levels
- E. Transvaginal Ultrasound for cervical length

All women with recurrent first-trimester miscarriage and all women with one or more second-trimester miscarriage should be screened before pregnancy for antiphospholipid antibodies.

Parental peripheral blood karyotyping of both partners should be performed in couples with recurrent miscarriage where testing of products of conception reports an unbalanced structural chromosomal abnormality. But in this case, cytogenetic analysis performed on products of conception shows no abnormalities thus there is no need for parental karyotyping.

There is currently no satisfactory objective test that can identify women with cervical weakness in the non-pregnant state. Hence, the option for transvaginal ultrasound for cervical length is incorrect.

Antiphospholipid syndrome

Antiphospholipid syndrome is the most important treatable cause of recurrent miscarriage. Antiphospholipid syndrome refers to the association between antiphospholipid antibodies (lupus anticoagulant, anticardiolipin antibodies and anti-B2 glycoprotein-I antibodies) and adverse pregnancy outcome or vascular thrombosis.

All women with recurrent first-trimester miscarriage and all women with one or more second-trimester miscarriage should be screened before pregnancy for antiphospholipid antibodies.

Pregnant women with antiphospholipid syndrome should be considered for treatment with low-dose aspirin plus heparin to prevent further miscarriage.

Neither corticosteroids nor intravenous immunoglobulin therapy improve the live birth rate of women with recurrent miscarriage associated with antiphospholipid antibodies compared with other treatment modalities; their use may provoke significant maternal and fetal morbidity

There is insufficient evidence to evaluate the effect of progesterone supplementation in pregnancy to prevent a miscarriage in women with recurrent miscarriage.



84. A 23 year old woman has had intermittent abdominal pain in the left iliac fossa for 6 week. Over the past 48 hours, she had had severe abdominal pain and fever of 39°C. Urine BHC is negative. She also has cervical motion tenderness. Pelvic ultrasound shows a 6.5 cm multilocular complex adnexal mass. Her WBC and CRP are raised. What is the SINGLE most likely diagnosis?

- A. Endometriosis
- B. Dermoid cyst
- C. Ovarian carcinoma
- D. Ectopic pregnancy
- E. Tubo - ovarian abscess**

This question describes Tubo-ovarian abscess which is a complication of PID.

The ultrasound findings of a tubo-ovarian abscess usually show a multilocular complex adnexal mass with debris, septations, and irregular thick walls

Endometriosis → Does not present as a mass on US

Ovarian cancer → Unlikely as she is very young and she has signs of an infection

Ectopic pregnancy → Unlikely as urine BHC is negative and signs and symptoms point towards PID

Dermoid cyst → Typically an ovarian dermoid is seen as a cystic adnexal mass with some mural components. Most lesions are unilocular.

85. A 23 year old woman has vaginal discharge and bleeding. An endocervical swab was taken which tested positive for *Neisseria gonorrhoeae*. What is the SINGLE most appropriate management?

- A. Erythromycin 500 mg PO for 5 days
- B. Ceftriaxone 500 mg as a single IM dose
- C. Metronidazole 400 mg PO twice daily for 14 days
- D. Azithromycin 1g PO for 7 days
- E. Azithromycin 1g PO and ceftriaxone 500mg IM stat**

Cervicitis management

If just cervicitis (*Chlamydia*)

- Azithromycin 1g single dose (OR doxycycline 100mg bd for 7 days) (both have similar efficacy of more than 95%)
Note that The 2009 SIGN guidelines suggest azithromycin should be used first-line due to potentially poor compliance with a 7 day course of doxycycline

If just cervicitis (*Neisseria gonorrhoeae*)

- Azithromycin 1g PO and ceftriaxone 500mg IM stat



	<p><i>It is important to note the differences between acute PID and just cervicitis as the management is different</i></p>
86.	<p>Which of the following is true regarding treatment with tamoxifen?</p> <p>A. Increased risk of endometrial carcinoma B. Increased risk of breast cancer C. Increased risk of osteoporosis D. Increased risk of ovarian carcinoma E. Increased risk of cervical cancer</p> <p>Tamoxifen is a risk factor for endometrial carcinoma.</p> <p>Tamoxifen is a Selective estrogen receptor modulator (SERM) used in the treatment of breast cancer. Even though it acts as an antagonist in breast tissue, it acts as an agonist on the endometrium thus there is an increased risk of endometrial cancer. There is also an Increased risk of thromboembolism. One benefit from tamoxifen is that it prevents bone loss by acting as an estrogen receptor agonist.</p> <p>Endometrial cancer</p> <p>Endometrial cancer is classically seen in post-menopausal women</p> <p>Risk factors for endometrial cancer:</p> <ul style="list-style-type: none">• Obesity• Nulliparity• Early menarche• Late menopause• Unopposed oestrogen. The addition of a progestogen to oestrogen reduces this risk (e.g. In HRT). The BNF states that the additional risk is eliminated if a progestogen is given continuously• Diabetes mellitus• Tamoxifen• Polycystic ovarian syndrome <p>Features</p> <p>In PLAB, they will always present with postmenopausal bleeding</p> <p>Investigation</p> <ul style="list-style-type: none">• First-line investigation is trans-vaginal ultrasound - a normal endometrial thickness (< 4 mm) has a high negative predictive value• Hysteroscopy with endometrial biopsy gives the definitive diagnosis <p>Management</p> <p>Is beyond the scope for PLAB. Remember, PLAB is an easy test.</p>



87. A 26 year old woman with regular menses and her 28 year old partner comes to the GP surgery complaining of primary infertility. She and her husband have been trying to achieve pregnancy for more than 2 years and have been unsuccessful. She has a regular 28 day menstrual cycle. Her BMI is 23. What is the SINGLE most appropriate investigation to determine if she is ovulating?

- A. Basal body temperature charts
- B. Cervical smear
- C. Day 2 follicular stimulating hormone (FSH) and luteinizing hormone (LH)
- D. Day 21 progesterone**
- E. Endometrial biopsy

Day 21 progesterone which is the mid-luteal progesterone level is used to assess ovulation. If this is low, it may need repeating, as ovulation does not occur every month.

FSH and LH should be measured if there is menstrual irregularity: High levels may suggest poor ovarian function. A comparatively high LH level relative to FSH level can occur in PCOS. In reality, we would obtain FSH, LH and mid-luteal progesterone levels. But for the purpose of examination, always pick mid-luteal progesterone levels as the answer when it comes to infertility investigations.

Basal body temperature charts are not recommended to predict ovulation, as they are unreliable.

Female Infertility

Causes of female infertility

- Unexplained
- Ovulation failure
- Tubal damage
 - Note that a history of pelvic inflammatory disease is highly suggestive of damage to tubes

Basic investigations

- Serum progesterone 7 days prior to expected next period. Meaning day 21 of a 28 day cycle. However, this day will need to be adjusted for different lengths of cycle
 - This is also termed "Mid-luteal progesterone level "
 - It is done to assess ovulation:
 - If low, it may need repeating, as ovulation does not occur every month



88. A 32 year old woman presents at 39 weeks gestation of her third pregnancy. She reports having a vaginal loss of clear viscous fluids 4 days ago. She did not attend the delivery suite as she had planned for a home birth. She feels feverish and sweaty. Routine examination of the patient's abdomen reveals tenderness suprapubically. Speculum examination reveals a purulent yellow vaginal discharge with cervix slightly opened. She has a temperature of 38.3°C. Fetal tachycardia is noted on a cardiotocograph. Her blood test show:

Haemoglobin 105 g/L
White cell count 19 x 10⁹/L
Platelets 250 x 10⁹/L
CRP 219

What is the SINGLE most likely diagnosis?

- A. Endometritis
- B. Chorioamnionitis**
- C. Septic miscarriage
- D. Pyelonephritis
- E. Threatened miscarriage

Prolonged rupture of membranes (PROM) is a risk factor for chorioamnionitis.

Although endometritis is a possibility, this is a more common complication in the postpartum period.

Chorioamnionitis

Chorioamnionitis is an acute inflammation of the foetal amnion and chorion membranes, typically due to an ascending bacterial infection in the setting of membrane rupture.

Features suggestive of chorioamnionitis

- Fever
- Abdominal pain, including contractions
- Maternal pyrexia and tachycardia.
- Uterine tenderness.
- Fetal tachycardia
- Maternal tachycardia.
- Speculum: offensive vaginal discharge → yellow/brown



89.	<p>A 42 year old woman complaints of heavy bleeding and prolonged menstrual period. She is not planning for children at the moment as she already has 2 children. She smokes 20 cigarettes a day. What is the SINGLE most appropriate management?</p> <p>A. Tranexamic acid B. Combined oral contraceptive pills C. Mefenamic acid D. Copper intrauterine contraceptive device E. Levonorgestrel intra-uterine system</p> <p>Levonorgestrel intra-uterine system (Mirena) is the first-line pharmaceutical treatment for menorrhagia. Smoking is not a contraindication for use for the mirena coil.</p>
90.	<p>A 30 year old pregnant lady, 34 weeks gestation, presents with severe lower abdominal pain which started several hours ago with excessive per vaginum bleeding. The abdominal pain is constant. What is the SINGLE most appropriate initial investigations?</p> <p>A. Coagulation profile B. Ultrasound abdomen C. Computed tomography scan of pelvis D. D-dimer E. Kleihauer-Betke test</p> <p>Although the clinical scenario here looks like placenta abruptio, one important diagnosis that we need to rule out as well is a placenta praevia for which initial the investigation of choice is an ultrasound. An ultrasound cannot exclude placental abruption, which is a clinical diagnosis.</p> <p>With every episode of bleeding, a rhesus-negative woman should have a Kleihauer test and be given prophylactic anti-D immunoglobulin however this is should not be done in an acute setting as the first investigation. A Kleihauer-Betke test can wait.</p> <p>It is worth mentioning that if the question was asking for the SINGLE best action and a CTG was within one of the options, that would usually be the best action. The reason behind this is placenta abruption is part of the differential and if the CTG shows fetal distress, the baby would need to be delivered immediately. There is no time to wait around for an ultrasound.</p>



91.	<p>A 32 year old woman was induced at 41+ weeks gestation. She had a long labour which lasted 24 hours. The uterus is still palpable above the umbilicus after an hour from delivering the placenta. What is the SINGLE most likely predisposing factor for postpartum haemorrhage</p> <p>A. Atonic uterus B. Cervical or vaginal trauma C. Ruptured uterus D. Fibroid uterus E. Disseminated intravascular coagulation (DIC)</p> <p>Uterine Atony Uterine Atony is the most common cause of excessive postpartum bleeding.</p> <p>Risk Factors for uterine atony include:</p> <ul style="list-style-type: none">• Rapid or protracted labour (most common),• Chorioamnionitis• Overdistended uterus → e.g. Macrosomic baby <p>Clinical Findings A soft uterus palpable above the umbilicus.</p> <p>Management Uterine massage and uterotonic agents (e.g., oxytocin)</p>
92.	<p>A 33 year old woman who is 11 weeks gestation attends her booking appointment with questions regarding vaccinations in pregnancy. What vaccines are offered to women who are pregnant in the UK?</p> <p>A. Pertussis, diphtheria and pneumococcal vaccines B. Influenza and rubella vaccines C. Influenza and pneumococcal vaccines D. Pertussis and rubella vaccines E. Influenza and pertussis vaccines</p> <p>There are two vaccines which are specifically recommended for pregnant women: the flu (influenza) vaccine and the whooping cough (pertussis) vaccine.</p> <p>For whooping cough the best time to get vaccinated is between 20 weeks and 32 weeks gestation. This maximises protection for the baby through antibody transfer.</p> <p>Note that there is actually no whooping cough-only (pertussis) vaccine. The vaccine is usually combined with polio, diphtheria and tetanus.</p>



93.	<p>A 22 year old woman who was diagnosed with a missed miscarriage a week ago now presents to the hospital because of abdominal pain. She says she passed a small fetus and a number of clots this morning. On examination, abdomen is tender, and cervical os is opened. A transvaginal ultrasound scan shows products of conception still present in the uterus. What is the SINGLE most likely diagnosis?</p> <p>A. Threatened miscarriage B. Inevitable miscarriage C. Incomplete miscarriage D. Complete miscarriage E. Spontaneous miscarriage</p> <p>Products of conception still present in the uterus defines incomplete miscarriage. Some products of conception have been expelled but some still remain thus giving the diagnosis of incomplete miscarriage. There is usually pain and vaginal bleeding and the cervical os is open.</p> <p>A short summary of types of miscarriages that are commonly asked in PLAB</p> <p>Threatened miscarriage → Vaginal bleeding + fetal heart seen. Cervical os is closed</p> <p>Missed miscarriage (delayed miscarriage) → Dead fetus before 20 weeks without the symptoms of expulsion. May or may not have vaginal bleeding. Cervical os is closed.</p> <p>Inevitable miscarriage → Cervical os opened and bleeding</p> <p>Incomplete miscarriage - Not all products of conception have been expelled</p> <p>Complete miscarriage - Everything has been expelled</p>
94.	<p>A 33 year old lady who is now 28 weeks pregnant comes to the antenatal clinic with pain and swelling on her left calf muscle. On physical examination, she has distension of superficial veins and increase skin temperature at affected area. What is the SINGLE most appropriate treatment?</p> <p>A. Aspirin B. Paracetamol C. Low molecular weight heparin D. Warfarin E. Alteplase</p> <p>Any pregnant woman with symptoms and/or signs suggestive of venous thromboembolism should have objective testing performed expeditiously and treatment with low-molecular-weight heparin (LMWH) given until the diagnosis is excluded by objective testing, unless treatment is strongly contraindicated</p>



95. A 22 year old woman who was diagnosed with a missed miscarriage a week ago presented to the hospital last night with abdominal pain and vaginal bleeding. Since then, she has passed a small fetus. A transvaginal ultrasound was repeated which showed an empty uterus. The pain is slowly easing off. What is the SINGLE most likely diagnosis?

- A. Threatened miscarriage
- B. Inevitable miscarriage
- C. Incomplete miscarriage
- D. Complete miscarriage**
- E. Spontaneous miscarriage

Complete miscarriage is a spontaneous abortion with expulsion of the entire fetus through the cervix. Pain and uterine contractions cease after fetus has been expelled. An ultrasound scan would show an empty uterus.

A short summary of types of miscarriages that are commonly asked in PLAB

Threatened miscarriage → Vaginal bleeding + fetal heart seen. Cervical os is closed

Missed miscarriage (delayed miscarriage) → Dead fetus before 20 weeks without the symptoms of expulsion. May or may not have vaginal bleeding. Cervical os is closed.

Inevitable miscarriage → Cervical os opened and bleeding

Incomplete miscarriage - Not all products of conception have been expelled

Complete miscarriage - Everything has been expelled

96. A 24 year old woman was prescribed azithromycin for a sexually transmitted infection. She has been using a form of contraception for the past year. Which SINGLE most likely contraceptive method is likely to be affected by azithromycin?

- A. Mirena coil (IUS)
- B. Intrauterine Contraceptive Device (IUCD)
- C. Progestogen-only pill (POP)
- D. Combined oral contraceptive pill (COCP)
- E. None of the above**

It was previously thought that hepatic enzyme inhibitor drugs (like azithromycin) may affect COCP but was later discovered that there were no significant interaction

Only drugs like rifampicin have an interaction with COCP. Combined hormonal contraceptives are less reliable during treatment with rifampicin. Breakthrough bleeding and spotting are common, and pregnancies have occurred when patient is on rifampicin and COCP.



97. A 28 year old primiparous woman, with no previous history of infection with herpes zoster, is 18 week pregnant. She had significant contact with a young girl with widespread chicken pox. Serum stored from an antenatal booking blood sample was sent for serology and came back negative for VZV IgG. What is the SINGLE most appropriate management?

- A. Aciclovir PO
- B. Aciclovir IV +IVIG
- C. Aciclovir IV
- D. Reassure
- E. IVIG only**

Chickenpox exposure in pregnancy

Chickenpox is caused by primary infection with varicella zoster virus. Shingles is reactivation of dormant virus in dorsal root ganglion. In pregnancy there is a risk to both the mother and also the fetus, a syndrome now termed fetal varicella syndrome

Fetal varicella syndrome (FVS)

- risk of FVS following maternal varicella exposure is around 1% if occurs before 20 weeks gestation studies have shown a very small number of cases occurring between 20-28 weeks gestation and none following 28 weeks
- features of FVS include skin scarring, eye defects (microphthalmia), limb hypoplasia, microcephaly and learning disabilities

Other risks to the fetus

- shingles in infancy: 1-2% risk if maternal exposure in the second or third trimester
severe neonatal varicella: if mother develops rash between 5 days before and 2 days after birth there is a risk of neonatal varicella, which may be fatal to the newborn child in around 20% of cases

Management of chickenpox exposure

PLAB usually would test your knowledge on 3 of these scenarios:

1. Who gets checked for Varicella antibodies?

If the woman's immunity to chickenpox is unknown and if there is any doubt about previous infection, or if there is no previous history of chickenpox or shingles, serum should be tested for VZV IgG. This can usually be performed within 24–48 hours and often within a few hours if the laboratory can access serum stored from an antenatal booking blood sample. At least 80% of women tested will have VZV IgG and can be reassured.

2. Who gets VZIG?

If the pregnant woman is not immune to VZV and she has had a significant exposure, she should be offered VZIG as soon as possible. VZIG is effective when given up to 10 days after contact.

Note: If the immune status of the woman is unknown, the administration of VZIG can be delayed until serology results are available



	<p>Note: VZIG has no therapeutic benefit once chickenpox has developed and should therefore not be used in pregnant women who have developed a chickenpox rash.</p> <p>3. <u>Who gets oral aciclovir?</u> Oral aciclovir should be prescribed for pregnant women with chickenpox if they present within 24 hours of the onset of the rash and if they are 20+0 weeks of gestation or beyond.</p> <p>In summary:</p> <ol style="list-style-type: none">1. <i>Pregnant exposed to chicken pox → Check women's immunity (previous infection, varicella antibodies)</i>2. <i>Not immuned → Administer VZIG</i>3. <i>If develop chicken pox rash → Administer oral aciclovir</i>
98.	<p>A 19 year old lady with primary amenorrhoea has the following blood results:</p> <p>Follicle-stimulating hormone (FSH) 11 IU/L Luteinizing Hormone (LH) 15 IU/L Prolactin 13 ng/mL Oestradiol 50 pmol/L</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Polycystic ovary syndrome B. Premature ovarian failure C. Absent uterus D. Absent ovaries E. Turner's syndrome</p> <p>A normal LH, FSH, oestradiol and prolactin rule outs polycystic ovary syndrome (PCOS). In PCOS there would be an increased LH, increased FSH, normal oestradiol. The LH:FSH ratio is usually 2:1 or 3:1.</p> <p>In premature ovarian failure, LH and FSH is raised.</p> <p>Turner syndrome and absent ovary would have bloods with a low estradiol, high FSH and LH.</p> <p>Thus, the only answer possible here would be absent uterus.</p>



99.	<p>A 58 year old lady presents with urinary incontinence. She says that she urinates a little everytime she laughs or coughs. She has had 2 previous vaginal deliveries. Urine culture results have come back as negative. Her urodynamic study is normal. What is the SINGLE most appropriate next step in management?</p> <p>A. Antibiotics B. Topical oestrogen C. Systemic oestrogen D. Duloxetine E. Pelvic floor exercise</p> <p>Stress incontinence is a leak of small amounts of urine when coughing or laughing. Usually with a history of many vaginal deliveries as this would weaken the pelvic floor muscles. The next management here would pelvic floor exercises. Loss of weight, and reducing caffeine are other lifestyle modifications that could be effective but were not given in this questions.</p>
100.	<p>A 29 year old woman who is 33 weeks gestation attends the antenatal clinic. Her full blood count was taken when she was 28 weeks as part of an antenatal screen for anaemia. The results shows:</p> <p>Haemoglobin 9.6 g/dL Mean cell volume 75 fL</p> <p>She is asymptomatic. What is the SINGLE most appropriate management?</p> <p>A. Folate supplement B. Iron supplements C. Blood transfusion D. No treatment required E. Hydroxocobalamin IM</p> <p>The values of anaemia differ in pregnancy as compared to a non pregnant women.</p> <p>The British Committee for Standards in Haematology has defined anaemia in pregnancy as the following values Hb levels of: <11.0g/dl in the first trimester <10.5 g/dl in the second and third trimesters <10.0 g/dl in the postpartum period.</p> <p>Since her Hb level is below 10.5g/dL, she does needs iron tablets.</p>



101. A 28 year old woman, gravida 2, para 1, comes to the maternity unit for evaluation for regular uterine contractions at 39 weeks' gestation. Her previous delivery was an emergency cesarean section at 38 weeks for dystocia. She is now experiencing severe abdominal pain and profuse vaginal bleeding. Her heart rate is 130 bpm, blood pressure is 95/55, oxygen saturation is 98% and temperature is 37.1°C. Reduced variability and late decelerations are now seen on CTG. What is the SINGLE most likely diagnosis?

- A. Endometritis
- B. Urinary tract infection
- C. Placenta praevia
- D. Shoulder dystocia
- E. Uterine rupture**

Uterine rupture

Definition

Uterine rupture is complete separation of the wall of the pregnant uterus with or without expulsion of the fetus that endangers the life of the mother or the fetus, or both.

This usually occurs during labour but has been reported antenatally.

Signs and symptoms

- Tenderness over sites of previous uterine scars
- Fetal parts may be easily palpable
- Fetus not palpable on vaginal examination
- Vaginal bleeding may be evident
- Signs of maternal shock may be present.

CTG may show fetal distress and change in apparent uterine activity (contractions may seem to disappear on the tocograph).

Risk Factors

The most common risk factors are:

- previous C-section or other uterine surgeries
- excessive oxytocin stimulation
- failure to recognize obstructed labour.

Women considering the options for birth after a previous caesarean should be informed that planned VBAC carries a risk of uterine rupture of 22–74/10,000

Diagnosis

- Confirmation of the diagnosis is made by surgical exploration of the uterus and identifying the tear

Management

- Urgent laparotomy to deliver fetus and repair uterus



102. A 23 year old woman presents with offensive vaginal discharge. A vaginal pH was taken and reads 5.6. What is the SINGLE most likely causative organism?

- A. Gardnerella vaginalis**
- B. Trichomonas vaginalis
- C. Candida albicans
- D. Chlamydia trachomatis
- E. Neisseria gonorrhoeae

Bacterial vaginosis

Bacterial vaginosis (BV) is caused by an overgrowth of mixed anaerobes, such as Gardnerella vaginalis, which replace the usually dominant vaginal lactobacilli resulting in a raised vaginal pH.

It is the commonest cause of abnormal vaginal discharge in women of childbearing age.

Whilst BV is not a sexually transmitted infection it is seen almost exclusively in sexually active women.

Features

- vaginal discharge: 'fishy', offensive
The characteristic 'fishy' smell is due to the presence of amines released by bacterial proteolysis and is often the reason women attend the clinic
- asymptomatic in 50%

Amsel's criteria for diagnosis of BV → 3 out of 4 required for diagnosis:

- Homogenous grey-white discharge
- Characteristic fishy smell
- 'Clue cells' present on microscopy
- vaginal pH > 5.5

Management

May resolve spontaneously and if successfully treated has a high recurrence rate. However, most women prefer it to be treated.

- Metronidazole 400mg orally bd for 5 days or metronidazole 2g (single dose) OR
- Clindamycin 2% cream vaginally at night for 7 days



103. A 42 year old complains of heavy blood loss per vaginam. An ultrasound shows uterine thickness of more than 12mm. There was no polyps or benign lesions seen on hysteroscopy. Histology reveals the diagnosis of simple endometrial hyperplasia without atypia. She has two children and is not currently planning for another child. What is the SINGLE most appropriate management for her?

- A. Mefenamic acid
- B. Combined oral contraceptive pills
- C. Progestogen-only pill
- D. Copper intrauterine contraceptive device
- E. Levonorgestrel intra-uterine system**

Endometrial hyperplasia

Endometrial hyperplasia is a premalignant condition, that can predispose to, or be associated with, endometrial carcinoma.

It is characterized by the overgrowth of endometrial cells and is caused by excess unopposed oestrogens, either endogenous or exogenous, similar to endometrial cancer, with which it shares a common aetiology

Presentation

- Usually presents clinically as abnormal vaginal bleeding (intermenstrual, polymenorrhoea or postmenopausal)
- It is most commonly diagnosed in women over 40 years old with irregular menstruations or in those with post-menopausal bleeding

Investigation:

- Transvaginal ultrasound (TVUS) is an appropriate first-line procedure. In general, the thicker the endometrium seen on ultrasound, the higher the likelihood of important pathology, ie endometrial cancer, being present.
- Endometrial sampling or formal endometrial curettage is necessary for diagnosis.

Management of endometrial hyperplasia (no atypia)

It largely depends on age of patient, histology, symptoms, and desire for retaining fertility.

Both continuous oral progestogens and levonorgestrel-releasing intrauterine system are effective in achieving regression of endometrial hyperplasia without atypia. However, the Royal College of Obstetrics and Gynaecology (Green-top Guideline No. 67, 2016) clearly states that levonorgestrel-releasing intrauterine system should be the first-line medical treatment because compared with oral progestogens it has a higher disease regression rate with a more favourable bleeding profile and it is associated with fewer adverse effects.



104. A 55 year old woman presents with dysuria, frequency and urinary incontinence. She complains of dyspareunia. Urine culture has been done and is sterile. What is the SINGLE most appropriate course of action?

- A. Oral antibiotics
- B. Topical antibiotics
- C. Topical oestrogen**
- D. Oral oestrogen
- E. Hormone replacement therapy

One of the many causes of dyspareunia is atrophic vaginitis (vaginal atrophy).

Oestrogen deficiency after menopause causes atrophic changes within the urogenital tract and is associated with urinary symptoms, such as frequency, urgency, nocturia, incontinence, and recurrent infection. These symptoms may coexist with those of vaginal atrophy, including dyspareunia, itching, burning, and dryness.

Intravaginal oestrogens is the treatment choice for vaginal atrophy. Alongside helping with the vaginal dryness, it can help with symptoms of urgency, urge incontinence, frequency, and nocturia.

Note as the symptoms are local (in the vagina), you would not prescribe a systemic hormone like oral oestrogen or HRT. Thus options D and E are out.

105. A 24 year old lady has lower abdominal pain worsening over the last 7 days. She has vaginal discharge and also complains of deep dyspareunia. Her last menstrual period was 2 weeks ago. Cervical motion tenderness was noted when doing a pelvic examination. She has a temperature of 38.2°C. Her blood tests show:

White cell count 15 x 10⁹/L
CRP 55 mg/L

She has no significant past medical history. What is the SINGLE most likely diagnosis?

- A. Endometriosis
- B. Acute pelvic inflammatory disease**
- C. Ectopic pregnancy
- D. Appendicitis
- E. Pelvic congestion syndrome

Pelvic inflammatory disease (PID)

Pelvic inflammatory disease (PID) is a term used to describe infection and inflammation of the female pelvic organs including the uterus, fallopian tubes, ovaries and the surrounding peritoneum. Most commonly caused by ascending infection from the endocervix.

Causative organisms

- Chlamydia trachomatis - the most common cause



- *Neisseria gonorrhoeae*

Risk factors for PID

- Age < 25
- Previous STIs
- New sexual partner/multiple sexual partners
- Uterine instrumentation such as surgical termination of pregnancy
- Intrauterine contraceptive devices
- Post-partum endometritis

Features

- Lower abdominal pain
- Fever
- Deep dyspareunia
- Dysuria and menstrual irregularities may occur
- Vaginal or cervical discharge
- Cervical excitation

Investigation

- Screen for Chlamydia and Gonorrhoea

Management

- There are many combinations of antibiotics to treat PID. It is unlikely that the PLAB test would ask you the management of PID. PLAB questions may ask you for the management of cervicitis (but unlikely PID). Remember, cervicitis is not the same as PID.

This is one of the combination examples for treatment of PID:

Outpatients: Ceftriaxone 500 mg as a single intramuscular dose, followed by oral doxycycline 100 mg twice daily plus oral metronidazole 400 mg twice daily, both for 14 days.

Note the differences between acute PID and just cervicitis.

If just cervicitis (Chlamydia)

- Azithromycin 1g single dose (OR doxycycline 100mg bd for 7 days) (both have similar efficacy of more than 95%)

If just cervicitis (*Neisseria gonorrhoeae*)

- Azithromycin 1g PO and ceftriaxone 500mg IM
- RCOG guidelines suggest that in mild cases of PID intrauterine contraceptive devices may be left in. The more recent BASHH guidelines suggest that the evidence is limited but that 'Removal of the IUD should be considered and may be associated with better short term clinical outcomes'

Complications

- Infertility - the risk may be as high as 10-20% after a single episode
- Chronic pelvic pain



	<ul style="list-style-type: none">Ectopic pregnancy
106.	<p>A 22 year old pregnant woman is admitted at 37 weeks gestation with a blood pressure of 165/95 mmHg and symptoms of visual disturbances and epigastric pain. A few hours after administration of IV magnesium sulphate and IV labetalol, she develops a fit. What is the SINGLE most appropriate IV therapy to prevent further fits?</p> <p>A. Hydralazine B. Diazepam C. Further bolus of Labetalol D. Further bolus of Magnesium sulphate E. Phenytoin</p> <p>Eclampsia</p> <p>Eclampsia is defined as the occurrence of a tonic-clonic seizure in association with a diagnosis of pre-eclampsia.</p> <p>Eclampsia is an obstetric emergency. Every hospital in the UK should have an eclampsia protocol and eclampsia box with all the drugs for treatment.</p> <p>Prevention and control of seizures:</p> <ul style="list-style-type: none">Magnesium sulfate should be considered when there is concern about the risk of eclampsia. It is used to prevent seizures as well as control it.To control a seizure, a loading dose of 4 g MgSO₄ in 100 ml 0.9% normal saline is given by infusion pump over 5-10 minutes. This is followed by a further infusion of 1 g/hour maintained for 24 hours after the last seizure.Recurrent seizures should be treated with either a further bolus of 2 g of magnesium sulfate or an increase in the infusion rate to 1.5 g or 2.0 g/hour.
107.	<p>An 17 year old girl with primary amenorrhoea complains of severe abdominal pain every 4 to 8 weeks which is now getting worse. On abdominal examination, a lower abdominal mass is felt. What is the SINGLE most likely diagnosis?</p> <p>A. Ectopic pregnancy B. Ovarian carcinoma C. Haematometra D. Endometriosis E. Adenomyosis</p> <p>The key word here is primary amenorrhoea. This means that she has never had her menses before. The only possibility among the options given that could cause primary amenorrhoea is haematometra.</p> <p>Primary amenorrhoea and cyclical pain indicate haematometra. Haematometra is an accumulation of blood within the uterus.</p>



	<p>One of the causes of haematometra that is associated with primary amenorrhoea is an imperforate hymen or a transverse vaginal septum. In an imperforate hymen, one might have a bluish bulging membrane visible at the introitus. A transverse vaginal septum may present with a possible abdominal mass.</p>
108.	<p>A 25 year old woman has vaginal discharge, intermenstrual bleeding and post coital bleeding. A vulvovaginal swab was taken which tested positive for <i>Neisseria gonorrhoeae</i>. What is the SINGLE most appropriate management?</p> <p>A. Erythromycin B. Ceftriaxone only C. Metronidazole D. Azithromycin only E. Azithromycin and ceftriaxone</p> <p>Cervicitis management</p> <p>If just cervicitis (<i>Chlamydia</i>)</p> <ul style="list-style-type: none">Azithromycin 1g single dose (OR doxycycline 100mg bd for 7 days) (both have similar efficacy of more than 95%) <i>Note that The 2009 SIGN guidelines suggest azithromycin should be used first-line due to potentially poor compliance with a 7 day course of doxycycline</i> <p>If just cervicitis (<i>Neisseria gonorrhoeae</i>)</p> <ul style="list-style-type: none">Azithromycin 1g PO and ceftriaxone 500mg IM stat <p><i>It is important to note the differences between acute PID and just cervicitis as the management is different</i></p>
109.	<p>A 34 year old primigravida who is 30 week pregnant presents to the labor ward with a history of constant abdominal pain for the last few hours. She also gives a history of having lost a cupful of fresh blood per vagina before the pain started. An irritable, tender uterus is seen on examination. Fetal heart is seen on ultrasound scan. What is the SINGLE most likely diagnosis?</p> <p>A. Abruptio of placenta secondary to pre-eclampsia B. Antepartum haemorrhage C. Placenta praevia D. Vasa praevia E. Early labour</p> <p>Though presentation indicates placental abruption, there are no signs and features suggestive of preeclampsia. The more accurate answer would be B. Antepartum haemorrhage as it also encompasses placental abruption.</p>



	<p>Placental abruption</p> <p>Placental abruption is the premature separation of a normally placed placenta. It describes separation of a normally sited placenta from the uterine wall, resulting in maternal haemorrhage into the intervening space</p> <p>The cause is not known but associated factors include:</p> <ul style="list-style-type: none">• proteinuric hypertension• multiparity• maternal trauma• increasing maternal age <p>Clinical features</p> <ul style="list-style-type: none">• Pain is constant• Very tender and tense uterus• Bleeding, which may be accompanied by pain• fetal heart: may be distressed• If the bleeding is severe, the mother may show signs of hypovolaemic shock; however, young, fit, pregnant women can compensate very well until sudden and catastrophic decompensation occurs <p>Note: Severe abruption can result in haemorrhagic shock with acute tubular necrosis from profound hypotension, and DIC from release of tissue thromboplastin into the general circulation from the disrupted placenta.</p>
110.	<p>A 49 year old woman who is a heavy smoker is worried of ovarian cancer because her mother died of ovarian cancer. She has been on hormone replacement therapy. She used to take combined oral contraceptive pills for a few years during her twenties. She underwent menopause when she was 46 years old. What is the SINGLE most relevant risk factor for ovarian cancer in her case?</p> <p>A. Smoking</p> <p>B. Family history</p> <p>C. Combined oral contraceptive pills</p> <p>D. Hormone replacement therapy</p> <p>E. Early menopause</p> <p>Family history of ovarian cancer is an important risk factor. Women with a first-degree relative with ovarian cancer have 3-4 times the risk of developing the disease. However, only 10% of cases arise in women with a positive family history.</p> <p>Smoking is a risk factor but it is not as important as family history. It is estimated that 2% of cases may be caused by smoking.[]</p> <p>HRT increases the risk of developing ovarian cancer but only slightly and it is only seen in patients using HRT for more than five years. About 1% of cases may be linked with taking</p>



	<p>HRT. Further studies are needed to ascertain the exact risk.</p> <p>Ovarian Cancer Risk factors</p> <ul style="list-style-type: none">• Family history: mutations of the BRCA1 or the BRCA2 gene• Many ovulations: early menarche, late menopause, nulliparity• Age → incidence increases with age <p>Protective factors against ovarian cancer:</p> <ul style="list-style-type: none">• COCP• Pregnancy
111.	<p>A 28 year old woman has been admitted at 38 weeks gestation. Her blood pressure is 190/120 mmHg and proteinuria is seen on urinalysis. Immediately following admission, she has a grand-mal seizure. What is the SINGLE most appropriate initial management?</p> <p>A. Diazepam intravenously B. Fetal CTG C. Hydralazine intravenously D. Immediate delivery E. Magnesium sulphate intravenously</p> <p>Intravenous magnesium sulphate is the most important initial management.</p> <p>Fetal CTG is also needed, but MgSO₄ comes first.</p> <p>Delivery should follow after stabilising mother.</p> <p>Eclampsia</p> <p>Eclampsia is defined as the occurrence of a tonic-clonic seizure in association with a diagnosis of pre-eclampsia.</p> <p>Eclampsia is an obstetric emergency. Every hospital in the UK should have an eclampsia protocol and eclampsia box with all the drugs for treatment.</p> <p>Prevention and control of seizures:</p> <ul style="list-style-type: none">• Magnesium sulfate should be considered when there is concern about the risk of eclampsia. It is used to prevent seizures as well as control it.• To control a seizure, a loading dose of 4 g MgSO₄ in 100 ml 0.9% normal saline is given by infusion pump over 5-10 minutes. This is followed by a further infusion of 1 g/hour maintained for 24 hours after the last seizure.• Recurrent seizures should be treated with either a further bolus of 2 g of magnesium sulfate or an increase in the infusion rate to 1.5 g or 2.0 g/hour.



112. A 38 year old female attends the clinic because of issues of infertility. She also says that her last period was 9 months. Lab results show:

Follicle-stimulating hormone (FSH) 59 IU/L
Luteinizing Hormone (LH) 78 IU/L
Prolactin 12 ng/mL
Oestradiol 25 pmol/L

An FSH was repeated 4 weeks later which was still elevated.

What is the SINGLE most likely diagnosis?

- A. Hypothalamic amenorrhoea
- B. Polycystic ovarian syndrome
- C. Prolactinoma
- D. Hypothyroidism
- E. Premature ovarian failure**

The diagnosis of premature ovarian failure usually needs two raised levels of FSH (more than 40 IU/L) taken at least four weeks apart. In this question, since she is amenorrhoeic with raised FSH and LH and a normal prolactin level, the most likely diagnosis would be premature ovarian failure. Women with premature ovarian failure also have low estradiol (usually < 50 pmol/l).

Premature ovarian failure

Premature ovarian failure (Premature ovarian insufficiency) is defined as the onset of menopausal symptoms and elevated gonadotropin levels before the age of 40 years. It occurs in around 1 in 100 women.

Causes

- Idiopathic - the most common cause
- Chemotherapy (this can be temporary, as recovery of ovarian function can occur, especially in younger women)
- Radiation
- Autoimmune disease
- Bilateral oophorectomy or surgical menopause

Presentation

1. The most common presentation is amenorrhoea or oligomenorrhoea (which may not necessarily be accompanied by hot flashes)
2. Infertility
3. Other features are similar to those of the normal climacteric symptoms:
 - Hot flashes
 - Night sweats
 - Irritability



	<ul style="list-style-type: none">• Poor concentration• Decreased sex drive• Dyspareunia• Vaginal dryness <p>Tests:</p> <p><u>FSH levels:</u></p> <ul style="list-style-type: none">• FSH test should be undertaken in women aged under 40 years in whom menopause is suspected• Two raised levels (more than 40 IU/L) taken at least four weeks apart are diagnostic <p>Serum follicle-stimulating hormone (FSH) measurement alone can be used to diagnose the disease. The anterior pituitary secretes FSH and LH at high levels due to the dysfunction of the ovaries and consequent low estrogen levels.</p> <p>Management:</p> <ul style="list-style-type: none">• hormone replacement therapy (HRT) until at least the average age of the menopause (51 years) <p>(The average age of the menopause in women in the UK is 51 years)</p> <p>Important Notes:</p> <p><u>Do NOT use early menopause and premature ovarian failure interchangeably</u></p> <ul style="list-style-type: none">• The term early menopause is used for those women who go through their menopause between 40-45 years <p><u>Do NOT use premature menopause and premature ovarian failure interchangeably</u></p> <ul style="list-style-type: none">• Premature ovarian failure is sometimes referred to as premature menopause, but the two conditions aren't exactly the same. Women with premature ovarian failure may have irregular or occasional periods for years and may even become pregnant. Women with premature menopause stop having periods and can't become pregnant.
113.	<p>A 24 year old woman has right iliac fossa pain and vaginal spotting. Her last menstrual period was 8 weeks ago. She is afebrile. A bimanual examination reveals cervical excitation. What is the SINGLE most likely diagnosis?</p> <p>A. Ectopic pregnancy B. Salpingitis C. Endometriosis D. Ovarian torsion E. Ovarian tumour</p> <p>Salpingitis, endometriosis, ovarian torsions and ovarian tumours are not associated with amenorrhoea.</p> <p>Patients pelvic pain and vaginal bleeding with peritonism and cervical excitation obviously</p>



	<p>points towards ectopic pregnancy.</p> <p>Ectopic pregnancy</p> <p>Defined by the implantation of a fertilized ovum outside the uterus</p> <p>Clinical features</p> <ul style="list-style-type: none">• lower abdominal pain: typically the first symptom.• vaginal bleeding: usually less than a normal period• history of recent amenorrhoea: typically 6-8 weeks from start of last period• peritoneal bleeding can cause shoulder tip pain <p>Examination findings</p> <ul style="list-style-type: none">• abdominal tenderness• cervical excitation (also known as cervical motion tenderness)• adnexal mass may be noticed <p>Management:</p> <ul style="list-style-type: none">• A laparoscopic approach to the surgical management of tubal pregnancy, in the haemodynamically stable patient, is preferable to an open approach• Management of tubal pregnancy in the presence of haemodynamic instability should be by the most expedient method. In most cases this will be laparotomy.
114.	<p>A 39 year old woman has not had her period for 10 months. She feels well but is anxious as her mother had an early menopause. What is the SINGLE most appropriate initial investigation?</p> <p>A. Serum estradiol concentration B. Serum FSH/LH C. Serum progesterone concentration D. Dual-energy X-ray absorptiometry (DEXA) E. Transvaginal Ultrasound</p> <p>Serum FSH/LH would be useful. In actual fact, serum follicle-stimulating hormone (FSH) measurement alone can be used to diagnose premature ovarian failure.</p> <p>Premature ovarian failure</p> <p>Premature ovarian failure (Premature ovarian insufficiency) is defined as the onset of menopausal symptoms and elevated gonadotropin levels before the age of 40 years. It occurs in around 1 in 100 women.</p> <p>Causes</p> <ul style="list-style-type: none">• Idiopathic - the most common cause• Chemotherapy (this can be temporary, as recovery of ovarian function can occur, especially in younger women)



- Radiation
- Autoimmune disease
- Bilateral oophorectomy or surgical menopause

Presentation

1. The most common presentation is amenorrhoea or oligomenorrhoea (which may not necessarily be accompanied by hot flushes)
2. Infertility
3. Other features are similar to those of the normal climacteric symptoms:
 - Hot flashes
 - Night sweats
 - Irritability
 - Poor concentration
 - Decreased sex drive
 - Dyspareunia
 - Vaginal dryness

Tests:

FSH levels:

- FSH test should be undertaken in women aged under 40 years in whom menopause is suspected
- Two raised levels (more than 40 IU/L) taken at least four weeks apart are diagnostic

Serum follicle-stimulating hormone (FSH) measurement alone can be used to diagnose the disease. The anterior pituitary secretes FSH and LH at high levels due to the dysfunction of the ovaries and consequent low estrogen levels.

Management:

- hormone replacement therapy (HRT) until at least the average age of the menopause (51 years)

(The average age of the menopause in women in the UK is 51 years)

Important Notes:

Do NOT use early menopause and premature ovarian failure interchangeably

- The term early menopause is used for those women who go through their menopause between 40-45 years

Do NOT use premature menopause and premature ovarian failure interchangeably

- Premature ovarian failure is sometimes referred to as premature menopause, but the two conditions aren't exactly the same. Women with premature ovarian failure may have irregular or occasional periods for years and may even become pregnant. Women with premature menopause stop having periods and can't become pregnant.



115. A 38 year old woman requires long term contraception. She has 3 healthy children and does not wish to have any more children in the near future. Upon examination she is found to have extensive fibroids which are distorting her uterine cavity. She says she has difficulty in remembering to take pills. What is the SINGLE best contraception for her?

A. Implanon (Nexplanon®)

B. Depo-Provera

C. Intra-Uterine System (Mirena®)

D. Combined oral contraceptive pills (COCP)

E. Progestin-Only pill

The key to choosing the correct answer here is to take into account firstly the fact that this woman has fibroids which are distorting her uterine cavity and the fact that any type of pill is not an option.

Depo-provera, even though a viable option, isn't the correct option for this stem. Depo-provera has a dosing interval of 13-16 weeks which is a pretty long time, but out of all the options is not the longest time.

An Intra-Uterine System (Mirena) which is the favorite of British examiners is not the choice here because insertion of an intra-uterine device would be difficult due to the fibroid uterus that is distorting the uterine cavity. The use of an Intra-Uterine System (Mirena) is contraindicated in women with congenital or acquired uterine anomaly, including fibroids if they distort the uterine cavity.

In actual fact and in clinical practice, having a large fibroid that distorts the uterine cavity is NOT a contraindication for insertion of a mirena coil. Gynaecologist still use mirena coils for patients with large fibroids that distort the cavity. While it is true that the risk of expulsion of a mirena coil is greater if the fibroid is large, there is no reason why it cannot first be tried. However, for the purpose of the exam, since the prescribing leaflet does mention that it is contraindicated if fibroids distort the uterine cavity, please do not choose the mirena coil as the answer.

Nexplanon® is the only contraceptive implant on the UK market. Nexplanon® is a 4 cm flexible rod containing 68 mg etonogestrel (a progestogen) which is released slowly into the systemic circulation following subdermal insertion in the upper arm. It must be removed after three years when it can be replaced immediately. Progestogen-only subdermal implants (POSDIs) such as Nexplanon® are suitable for:

- Those who want a reliable but reversible form of contraception which does not require daily vigilance or action at the time of intercourse.
- Women who have contra-indications to oestrogen therapy

Choosing the correct contraceptive for the correct situation is something a lot of students have problems with. Here are some useful contraception/abnormal uterine bleeding clinchers for the PLAB 1 exam:



	<p>Young woman, not sexually active (don't require contraception)</p> <ul style="list-style-type: none">• Menorrhagia only - tranexamic acid• Menorrhagia with dysmenorrhoea - mefenamic acid• Menorrhagia/dysmenorrhoea/metrorrhagia (irregular menses) - COCP <p>Sexually active woman (require contraception)</p> <ul style="list-style-type: none">• Menorrhagia/dysmenorrhoea or those suffering from fibroids (which do not distort the uterine cavity) - IUS Mirena (first-line). These questions will also mention possible contraindications for COCP like obesity/smoking/history of thromboembolism etc.• Woman with sickle cell disease and menorrhagia – Depo-provera IM <p>Emergency contraception</p> <ul style="list-style-type: none">• Within 72 hours of unprotected sex: Levonelle pill• Within 120 hours of unprotected sex: IUCD or ellaOne pill. <p>For postpartum contraception</p> <ul style="list-style-type: none">• Breastfeeding mothers – COCP after 6 months.• Non breastfeeding mothers - COCP after three weeks.• In both cases, during the period before they can start using COCP, they can use male or female condoms and progesterone only preparations.• IUS/IUCD can be inserted 48 hours after birth or 6 weeks later.
116.	<p>A 38 year old woman presents with itching around the breast and greenish foul smelling discharge from the nipple. She had a similar episode a year ago. What is the SINGLE most likely diagnosis?</p> <p>A. Breast abscess B. Duct ectasia C. Duct papilloma D. Fat necrosis E. Paget's disease of nipple</p> <p>Duct Ectasia is suggested by a green or brown nipple discharge.</p> <p>The other options in this question do not present with greenish foul smelling discharge from the nipple</p> <p>Breast abscess → is suggested by a fluctuant lump, hot and tender, acute presentation often in puerperium, chronic after antibiotics.</p> <p>Duct papilloma → is suggested by bleeding from nipple.</p> <p>Fat necrosis → is suggested by a firm and solitary localized lump.</p> <p>Paget's disease of nipple → is suggested by breast nipple 'eczema'.</p>



117. A 32 year old female who has completed her wants to know more about contraception and the risk of ectopic pregnancies. Which of the following contraceptive methods increase the absolute risk of ectopic pregnancies?

- A. Combined oral contraceptive pills (COCP)
- B. Intrauterine system (Mirena coil)
- C. Progestogen-only Pill (POP)
- D. Progesterone-only implant (Nexplanon)
- E. None of the above**

This question by the examiners is written purely to test your knowledge of absolute and relative risk. You would need to know a little on the background of intrauterine systems.

The absolute risk of ectopic pregnancy with the mirena coil is decreased but the relative risk is increased. Meaning if you were to become pregnant while on the mirena coil, the risk of it being an ectopic is higher as compared to if you were to become pregnant while you were not on the mirena coil.

The risk of ectopic pregnancy when using IUDs is lower than when using no contraception.

The overall risk of ectopic pregnancy when using the IUD is very low, at about 1 in 1000 in 5 years.

If a woman becomes pregnant with the IUD in situ, the risk of ectopic pregnancy is about 1 in 20.

118. A 24 year old woman with multiple sexual partners complains of lower abdominal pain, deep dyspareunia and menstrual irregularities. On vaginal examination, cervical excitation was noted. She has no significant past medical history. Which is the SINGLE most likely cause of her symptoms?

- A. Pelvic Inflammatory Disease (PID)**
- B. Endometriosis
- C. Fitz-Hugh-Curtis syndrome
- D. Cervicitis
- E. Asherman syndrome

Multiple sexual partners are a risk factor for pelvic inflammatory disease. Women of her age group (<25 years old) are of greater risk for pelvic inflammatory disease as they are more sexually active during this period.

Other options are less likely because:

Endometriosis → Although chronic pelvic pain, deep dyspareunia and menstrual irregularities could be seen in endometriosis. It is unlikely the given choice here as the history of multiple sexual partners and cervical excitation do not match with this answer



Fitz-Hugh-Curtis syndrome → is a complication of pelvic inflammatory disease (PID). Usually presents with an acute onset of right upper quadrant (RUQ) abdominal pain aggravated by breathing, or coughing. This pain may be referred to the right shoulder

Cervicitis → Presents with discharge. Do not get confused between cervicitis and PID. Infection at the cervix can eventually ascend to cause PID. But if the infection is purely at the cervix, they will not present with menstrual irregularities and lower abdominal pain as the infection has not ascended to involve the uterus, fallopian tubes, and ovaries.

Asherman syndrome → are adhesions of the endometrium often associated with dilation and curettage of the intrauterine cavity. It results in infertility. Often, they experience menstrual irregularities. But in this question there is no relevant past medical history meaning she did not have any dilation and curettage thus this option is very unlikely.

Pelvic inflammatory disease (PID)

Pelvic inflammatory disease (PID) is a term used to describe infection and inflammation of the female pelvic organs including the uterus, fallopian tubes, ovaries and the surrounding peritoneum. Most commonly caused by ascending infection from the endocervix.

Causative organisms

- Chlamydia trachomatis - the most common cause
- Neisseria gonorrhoeae

Risk factors for PID

- Age <25
- Previous STIs
- New sexual partner/multiple sexual partners
- Uterine instrumentation such as surgical termination of pregnancy
- Intrauterine contraceptive devices
- Post-partum endometritis

Features

- lower abdominal pain
- fever
- deep dyspareunia
- dysuria and menstrual irregularities may occur
- vaginal or cervical discharge
- cervical excitation

Investigation

- screen for Chlamydia and Gonorrhoea

Management

- There are many combinations of antibiotics to treat PID. It is unlikely that the PLAB test would ask you the management of PID. PLAB questions may ask you for the management of cervicitis (but unlikely PID). Remember, cervicitis is not the same as PID.



	<p>This is one of the combination examples for treatment of PID: Outpatients: Ceftriaxone 500 mg as a single intramuscular dose, followed by oral doxycycline 100 mg twice daily plus oral metronidazole 400 mg twice daily, both for 14 days.</p> <p>Note the differences between acute PID and just cervicitis. If just cervicitis (Chlamydia)</p> <ul style="list-style-type: none">• Azithromycin 1g single dose (OR doxycycline 100mg bd for 7 days) (both have similar efficacy of more than 95%) <p>If just cervicitis (Neisseria gonorrhoeae)</p> <ul style="list-style-type: none">• Azithromycin 1g PO and ceftriaxone 500mg IM• RCOG guidelines suggest that in mild cases of PID intrauterine contraceptive devices may be left in. The more recent BASHH guidelines suggest that the evidence is limited but that 'Removal of the IUD should be considered and may be associated with better short term clinical outcomes' <p>Complications</p> <ul style="list-style-type: none">• infertility - the risk may be as high as 10-20% after a single episode• chronic pelvic pain• ectopic pregnancy
119.	<p>A 33 year old woman, gravida 2, para 1, comes to the maternity unit for evaluation for regular uterine contractions at 38 weeks' gestation. Her previous delivery was an emergency cesarean section at 39 weeks due to a breech fetus. She is now experiencing severe abdominal pain and tenderness over the previous uterine scars. CTG shows fetal distress and absent uterine contractility. What is the SINGLE most likely diagnosis?</p> <p>A. Endometritis B. Placenta abruption C. Uterine rupture D. Shoulder dystocia E. Placenta praevia</p> <p>Uterine rupture</p> <p>Definition Uterine rupture is complete separation of the wall of the pregnant uterus with or without expulsion of the fetus that endangers the life of the mother or the fetus, or both.</p> <p>This usually occurs during labour but has been reported antenatally.</p> <p>Signs and symptoms</p> <ul style="list-style-type: none">• Tenderness over sites of previous uterine scars• Fetal parts may be easily palpable• Fetus not palpable on vaginal examination



	<ul style="list-style-type: none">• Vaginal bleeding may be evident• Signs of maternal shock may be present. <p>CTG may show fetal distress and change in apparent uterine activity (contractions may seem to disappear on the tocograph).</p> <p>Risk Factors</p> <p>The most common risk factors are:</p> <ul style="list-style-type: none">• previous C-section or other uterine surgeries• excessive oxytocin stimulation• failure to recognize obstructed labour. <p>Women considering the options for birth after a previous caesarean should be informed that planned VBAC carries a risk of uterine rupture of 22–74/10,000</p> <p>Diagnosis</p> <ul style="list-style-type: none">• Confirmation of the diagnosis is made by surgical exploration of the uterus and identifying the tear <p>Management</p> <ul style="list-style-type: none">• Urgent laparotomy to deliver fetus and repair uterus
120.	<p>A 33 year old 39 week pregnant nulliparous women with a previous history of gestational hypertension is in labour. Her membranes had ruptured earlier in the day. She was assessed by the midwife and her cervix was found to be soft, mid-position with an os 3 cm dilated. The fetus is in cephalic position. A vaginal examination was performed 4 hours later and the cervical os still remains at 3 cm dilated. Cardiotocography is reassuring and she is contracting less than three times in 10 minutes. What is the SINGLE most appropriate action?</p> <p>A. Repeat vaginal examination in 4 hours B. Amniotomy C. Caesarean section D. External rotation E. IV syntocinon drip</p> <p>There is obvious delay in the first stage of labour since there has been no cervical change over the last 4 hours. Amniotomy and oxytocin infusion and reassessment in 2 hours should always be considered in nulliparous women. Since her waters have already been broken. It would be appropriate to start oxytocin (syntocinon).</p> <p>Some causes of poor progress in the 1st stage</p> <ul style="list-style-type: none">• Inefficient uterine activity (power → commonest cause)• Malposition, malpresentation, or large baby (passenger)• Inadequate pelvis (passage) <p>Oxytocin will increase the frequency and strength of her contractions.</p>



121. A 21 year old woman had a recent suction curettage to evacuate the contents of the uterus following a miscarriage. The histology shows changes consistent with a hydatidiform mole. What is the SINGLE most appropriate advice to be given?

- A. Barrier contraception should be used for 6 weeks
- B. Barrier contraception should be used until serum hCG is normal**
- C. COCP should be used until serum hCG is normal
- D. HRT should be used until serum hCG is normal
- E. No contraception needed after evacuation of contents of the uterus

Serum and urine samples of hCG concentrations are extremely important.

In hydatidiform mole, hCG levels are likely to be raised excessively (especially in complete moles). Management would involve surgical evacuation, after which the hCG levels are expected to return to a normal, non-pregnant level.

We would like the hCG to go down towards a normal level but if it plateaued or if hCG levels rise after evacuation, chemotherapy is indicated.

This is the reason it is so important not to get pregnant during the time that hCG levels are decreasing as if one were to get pregnant, hCG levels would increase again and we will not know if it is due to the hydatidiform mole or the new pregnancy.

The best advice to give is use barrier contraception until serum hCG is normal.

Gestational Trophoblastic Disease

Gestational trophoblastic disease (GTD) covers a spectrum of diseases caused by overgrowth of the placenta. It ranges from molar pregnancies to malignant conditions such as choriocarcinoma. If there is any evidence of persistence of GTD the condition is referred to as gestational trophoblastic neoplasia (GTN).

GTD is classified as follows:

Premalignant - hydatidiform mole

- Complete hydatidiform mole (CHM)
- Partial hydatidiform mole (PHM)

Malignant - gestational trophoblastic neoplasia (GTN)

- Invasive mole
- Choriocarcinoma
- Placental site trophoblastic tumour (PSTT)
- Epithelioid trophoblastic tumour (ETT)

The classification of GTD is less important. An exam of this level usually does not require you to know details of types of GTD.



	<p>Features:</p> <ul style="list-style-type: none">• Hyperemesis• Irregular first-trimester vaginal bleeding• Uterus large for dates• Vaginal passage of vesicles containing products of conception• Serum hCG is excessively high with complete moles, but levels may be within the normal range for partial moles. <p>Ultrasound findings of a complete mole</p> <ul style="list-style-type: none">• ‘Snowstorm’ appearance of mixed echogenicity, representing hydropic villi and intrauterine haemorrhage• Large theca lutein cysts <p>Management of Hydatidiform mole:</p> <ul style="list-style-type: none">• Surgical evacuation (Suction curettage)<ul style="list-style-type: none">• Note that histological examination of products of conception is essential to confirm diagnosis• Two-weekly serum and urine samples until hCG concentrations are normal.<ul style="list-style-type: none">• Women should be advised not to conceive until hCG level has been normal for 6 months• Barrier contraception should be used until serum hCG is normal• COCP and HRT are safe to use after hCG levels have returned to normal <p>Management of gestational trophoblastic neoplasia (GTN) <i>This is unlikely to be asked in detail in PLAB 1 due to the complexity of the management. But you do need to know it involves chemotherapy</i></p>
122.	<p>A 34 year old female presents with a very strong foul smelling vaginal discharge. What organism(s) could cause such a symptom?</p> <p>A. Chlamydia, Gonorrhea B. Chlamydia, Gardnerella C. Chlamydia, Gonorrhea, gardnerella D. Gonorrhea, Gardnerella E. Gardnerella only</p> <p>Bacterial vaginosis and Trichomonas vaginalis can give foul smelling discharge.</p> <p>In bacterial vaginosis the vaginal discharge is grey-white and has a “fishy” smell.</p> <p>In trichomonas vaginalis, it can be a greenish and frothy along with vulvovaginitis i.e. strawberry cervix.</p> <p>The discharge of Chlamydia and Gonorrhea is not usually foul smelling.</p>



Since Trichomoniasis is not present among the available choices, Gardnerella is the answer.

Bacterial vaginosis

Bacterial vaginosis (BV) is caused by an overgrowth of mixed anaerobes, such as Gardnerella vaginalis, which replace the usually dominant vaginal lactobacilli resulting in a raised vaginal pH.

It is the commonest cause of abnormal vaginal discharge in women of childbearing age.

Whilst BV is not a sexually transmitted infection it is seen almost exclusively in sexually active women.

Features

- Vaginal discharge: 'fishy', offensive
The characteristic 'fishy' smell is due to the presence of amines released by bacterial proteolysis and is often the reason women attend the clinic
- Asymptomatic in 50%

Amsel's criteria for diagnosis of BV → 3 out of 4 required for diagnosis:

- Homogenous grey-white discharge
- Characteristic fishy smell
- 'Clue cells' present on microscopy
- Vaginal pH > 5.5

Management

May resolve spontaneously and if successfully treated has a high recurrence rate. However, most women prefer it to be treated.

- Metronidazole 400mg orally bd for 5 days or metronidazole 2g (single dose) OR
- Clindamycin 2% cream vaginally at night for 7 days

123. A 31 year old woman, gravida 5 para 4, present to the emergency department with vaginal bleeding. She has a history of amenorrhoea for 12 weeks. Pregnancy test was done in the emergency department and it was positive. Symphyseal-fundal height measurement corresponds to 22 weeks gestation. Ultrasound of the pelvis reveals bilateral cystic masses. No fetal parts are seen during the ultrasound examination. The cervix is closed. Which is the SINGLE most likely diagnosis?

- A. Tubal pregnancy
- B. Endometriosis
- C. Hydatidiform mole**
- D. Threatened abortion
- E. Ovarian hyperstimulation syndrome



The ultrasound findings of the bilateral cystic masses represents the large theca lutein cysts. Uterus large for dates and the vaginal bleeding are typical features of hydatidiform mole.

Gestational Trophoblastic Disease

Gestational trophoblastic disease (GTD) covers a spectrum of diseases caused by overgrowth of the placenta. It ranges from molar pregnancies to malignant conditions such as choriocarcinoma. If there is any evidence of persistence of GTD the condition is referred to as gestational trophoblastic neoplasia (GTN).

GTD is classified as follows:

Premalignant - hydatidiform mole

- Complete hydatidiform mole (CHM)
- Partial hydatidiform mole (PHM)

Malignant - gestational trophoblastic neoplasia (GTN)

- Invasive mole
- Choriocarcinoma
- Placental site trophoblastic tumour (PSTT)
- Epithelioid trophoblastic tumour (ETT)

The classification of GTD is less important. An exam of this level usually does not require you to know details of types of GTD.

Features:

- Hyperemesis
- Irregular first-trimester vaginal bleeding
- Uterus large for dates
- Vaginal passage of vesicles containing products of conception
- Serum hCG is excessively high with complete moles, but levels may be within the normal range for partial moles.

Ultrasound findings of a complete mole

- 'Snowstorm' appearance of mixed echogenicity, representing hydropic villi and intrauterine haemorrhage
- Large theca lutein cysts

Management of Hydatidiform mole:

- Surgical evacuation (Suction curettage)
 - Note that histological examination of products of conception is essential to confirm diagnosis
- Two-weekly serum and urine samples until hCG concentrations are normal.
 - Women should be advised not to conceive until hCG level has been normal for 6 months
 - Barrier contraception should be used until serum hCG is normal



	<ul style="list-style-type: none">• COCP and HRT are safe to use after hCG levels have returned to normal <p>Management of gestational trophoblastic neoplasia (GTN)</p> <p><i>This is unlikely to be asked in detail in PLAB 1 due to the complexity of the management. But you do need to know it involves chemotherapy</i></p>
124.	<p>A 33 year old woman comes to the emergency department complaining of right sided abdominal pain for the last day. She vomited once earlier today. She gives a history of missing a period. A urine pregnancy test was found to be positive. A transvaginal ultrasound scan reveals an empty uterus. On examination, she is found to be tender at the right iliac fossa with no signs of peritonism. She is afebrile and observations are stable. What is the SINGLE most appropriate next step in management?</p> <p>A. Laparoscopy B. Human chorionic gonadotropin (hCG) blood test C. Repeat ultrasound in a week D. Laparotomy E. Culdocentesis</p> <p>It is clear here that she has an ectopic pregnancy. The be more specific, this is a presentation of an unruptured ectopic pregnancy. The fact that there are no signs of peritonism, no shoulder tip pain or per vaginal bleeding and observations are normal means that a ruptured ectopic is unlikely.</p> <p>As she is haemodynamically stable with severe right abdominal pain, a laparoscopic approach to the surgical management of tubal pregnancy is warranted however we would need to obtain a serum beta-hCG test first. With the results of the serum beta-hCG, we would be able to plan the next step in management. If the serum beta-hCG was less than 1500 IU/litre and patient is clinically stable with pain resolving, then we would prefer expectant management where we would just observe. The reason behind this, is that one cannot be sure of the diagnosis of an ectopic pregnancy when the serum beta-hCG is less then 1500 IU/litre as it could very well be an intrauterine pregnancy that is just too small to see on a scan at the moment. If a beta-hCG was more than 1500 IU/litre, we would expect to see a gestational sac in the uterus. Meaning if the beta-hCG was more than 1500 IU/litre and nothing can be found in the uterus on a transvaginal ultrasound, the diagnosis of an ectopic can be certain.</p> <p>Laparotomy would be the choice if the patient is clearly haemodynamically unstable. The reason for this is laparotomy is quicker than a laparoscopy.</p> <p>Methotrexate would be first line for an ectopic pregnancy if she was not in significant pain. Although systemic methotrexate is first line, it can only be used if it contains all the criteria below:</p> <ul style="list-style-type: none">• Not in significant pain• Adnexal mass smaller than 35mm with no fetal heart visible• Serum hCG less than 1500 IU/litre (most hospitals now use a cutoff of 5000 IU/litre)• Able to return for follow-up



	<p>It is unlikely that the examiners for PLAB expect you to know these criteria thus methotrexate is unlikely to be the answer in PLAB.</p> <p>Culdocentesis was previously used to diagnose a ruptured ectopic pregnancy by the presence of free fluid in the pouch of Douglas. However, ultrasonography is noninvasive and has largely replaced culdocentesis where available.</p> <p>Ectopic pregnancy</p> <p>Defined by the implantation of a fertilized ovum outside the uterus</p> <p>Clinical features</p> <ul style="list-style-type: none">• lower abdominal pain: typically the first symptom.• vaginal bleeding: usually less than a normal period• history of recent amenorrhoea: typically 6-8 weeks from start of last period• peritoneal bleeding can cause shoulder tip pain <p>Examination findings</p> <ul style="list-style-type: none">• abdominal tenderness• cervical excitation (also known as cervical motion tenderness)• adnexal mass may be noticed <p>Management:</p> <ul style="list-style-type: none">• A laparoscopic approach to the surgical management of tubal pregnancy, in the haemodynamically stable patient, is preferable to an open approach• Management of tubal pregnancy in the presence of haemodynamic instability should be by the most expedient method. In most cases this will be laparotomy.
125.	<p>A 34 year old pregnant woman, 11 weeks gestation, presents with vaginal bleeding. She has been noted to be nauseas and vomiting for the past couple of weeks. Symphyseal-fundal height measurement corresponds to a 18 week pregnant uterus. Which is the SINGLE most likely diagnosis?</p> <p>A. Tubal pregnancy B. Endometriosis C. Hydatidiform mole D. Threatened abortion E. Ovarian hyperstimulation syndrome</p> <p>Gestational Trophoblastic Disease</p> <p>Gestational trophoblastic disease (GTD) covers a spectrum of diseases caused by overgrowth of the placenta. It ranges from molar pregnancies to malignant conditions such as choriocarcinoma. If there is any evidence of persistence of GTD the condition is referred to as gestational trophoblastic neoplasia (GTN).</p>



GTD is classified as follows:

Premalignant - hydatidiform mole

- Complete hydatidiform mole (CHM)
- Partial hydatidiform mole (PHM)

Malignant - gestational trophoblastic neoplasia (GTN)

- Invasive mole
- Choriocarcinoma
- Placental site trophoblastic tumour (PSTT)
- Epithelioid trophoblastic tumour (ETT)

The classification of GTD is less important. An exam of this level usually does not require you to know details of types of GTD.

Features:

- Hyperemesis
- Irregular first-trimester vaginal bleeding
- Uterus large for dates
- Vaginal passage of vesicles containing products of conception
- Serum hCG is excessively high with complete moles, but levels may be within the normal range for partial moles.

Ultrasound findings of a complete mole

- 'Snowstorm' appearance of mixed echogenicity, representing hydropic villi and intrauterine haemorrhage
- Large theca lutein cysts

Management of Hydatidiform mole:

- Surgical evacuation (Suction curettage)
 - Note that histological examination of products of conception is essential to confirm diagnosis
- Two-weekly serum and urine samples until hCG concentrations are normal.
 - Women should be advised not to conceive until hCG level has been normal for 6 months
 - Barrier contraception should be used until serum hCG is normal
 - COCP and HRT are safe to use after hCG levels have returned to normal

Management of gestational trophoblastic neoplasia (GTN)

This is unlikely to be asked in detail in PLAB 1 due to the complexity of the management. But you do need to know it involves chemotherapy



126. A 66 year old woman had two episodes of post-coital vaginal bleeding in the last week. She has not had any withdrawal bleeds for more than 12 years. Her last cervical smear was 3 years ago which showed no abnormalities. What is the SINGLE most appropriate initial action?

- A. Repeat cervical smear
- B. Topical oestrogen cream
- C. Thyroid function test
- D. Transvaginal ultrasound**
- E. Abdominal CT scan

The idea here is to think of endometrial cancer. Any women who has postmenopausal bleeding should have a transvaginal ultrasound to determine the endometrial thickness. If the endometrium is thick, hysteroscopy with endometrial biopsy would be arranged.

Atrophic vaginitis could also cause postmenopausal bleeding or postcoital bleeding. But it is more important to rule out endometrial cancer because of it's seriousness. Remember, postmenopausal bleeding is cancer until proved otherwise.

A cervical smear is offered every 5 years in the UK if in the age group of 50 to 64 years old. Thus, having a cervical smear that was normal 3 years ago is a usual phenomenon. A repeat cervical smear is not necessary.

Endometrial cancer

Endometrial cancer is classically seen in post-menopausal women. Classically, endometrial cancer presents as postmenopausal bleeding (PMB) and, although this is not the only cause, it must be excluded.

Risk factors for endometrial cancer:

- Obesity
- Nulliparity
- early menarche
- late menopause
- unopposed oestrogen. The addition of a progestogen to oestrogen reduces this risk (e.g. In HRT). The BNF states that the additional risk is eliminated if a progestogen is given continuously
- diabetes mellitus
- tamoxifen
- polycystic ovarian syndrome

Features

In PLAB, they will always present with postmenopausal bleeding



	<p>Investigation</p> <ul style="list-style-type: none">• first-line investigation is trans-vaginal ultrasound - a normal endometrial thickness (< 4 mm) has a high negative predictive value• hysteroscopy with endometrial biopsy gives the definitive diagnosis <p>Management</p> <p>Is beyond the scope for PLAB. Remember, PLAB is an easy test.</p>
127.	<p>A 23 year old woman presents with offensive, homogenous grey-white vaginal discharge. Clue cells are demonstrated on a saline smear. What is the SINGLE most likely diagnosis?</p> <p>A. Bacterial vaginosis B. Trichomoniasis C. Candidiasis D. Chlamydia infection E. Neisseria gonorrhoeae infection</p> <p>Bacterial vaginosis Bacterial vaginosis (BV) is caused by an overgrowth of mixed anaerobes, such as Gardnerella vaginalis, which replace the usually dominant vaginal lactobacilli resulting in a raised vaginal pH.</p> <p>It is the commonest cause of abnormal vaginal discharge in women of childbearing age.</p> <p>Whilst BV is not a sexually transmitted infection it is seen almost exclusively in sexually active women.</p> <p>Features</p> <ul style="list-style-type: none">• vaginal discharge: 'fishy', offensive The characteristic 'fishy' smell is due to the presence of amines released by bacterial proteolysis and is often the reason women attend the clinic• asymptomatic in 50% <p>Amsel's criteria for diagnosis of BV → 3 out of 4 required for diagnosis:</p> <ul style="list-style-type: none">• Homogenous grey-white discharge• Characteristic fishy smell• 'Clue cells' present on microscopy• vaginal pH > 5.5 <p>Management May resolve spontaneously and if successfully treated has a high recurrence rate. However, most women prefer it to be treated.</p> <ul style="list-style-type: none">• Metronidazole 400mg orally bd for 5 days or metronidazole 2g (single dose) OR• Clindamycin 2% cream vaginally at night for 7 days



128.	<p>A 23 year old woman has vaginal discharge and bleeding. An endocervical swab was taken which tested positive for Chlamydia. What is the SINGLE most appropriate antibiotic to give?</p> <p>A. Erythromycin 500 mg orally once a day for 5 days B. Ceftriaxone 500 mg as a single intramuscular dose C. Metronidazole 400 mg orally twice daily for 14 days D. Azithromycin 1g for 7 days E. Azithromycin 1g single oral dose</p> <p>Cervicitis management</p> <p>If just cervicitis (Chlamydia)</p> <ul style="list-style-type: none">Azithromycin 1g single dose (OR doxycycline 100mg bd for 7 days) (both have similar efficacy of more than 95%) <i>Note that The 2009 SIGN guidelines suggest azithromycin should be used first-line due to potentially poor compliance with a 7 day course of doxycycline</i> <p>If just cervicitis (Neisseria gonorrhoeae)</p> <ul style="list-style-type: none">Azithromycin 1g PO and ceftriaxone 500mg IM <p><i>It is important to note the differences between acute PID and just cervicitis as the management is different</i></p>
129.	<p>A 32 year old primigravida at 28 weeks gestation presents with a blood pressure of 152/105 mmHg. A second blood pressure reading was taken 10 minutes later which read 153/108 mmHg. She is asymptomatic and otherwise well. A urinalysis was negative for protein. She has no history of high blood pressure in the past. What is the SINGLE most likely management?</p> <p>A. Indapamide B. Hydralazine C. Labetalol D. Losartan E. Magnesium sulphate</p>



- 130.** A 39 year old female was on combined oral contraceptive pills which she stopped 9 months ago. She has not had her periods since then. Lab results show:

Follicle-stimulating hormone (FSH) 55 U/L
Luteinizing Hormone (LH) 75 U/L
Prolactin 14 ng/mL
Oestradiol 30 pmol/L

What is the SINGLE most likely diagnosis?

- A. Hypothalamic amenorrhoea
- B. Post pill amenorrhoea
- C. Prolactinoma
- D. Pregnancy
- E. Premature ovarian failure**

The diagnosis of premature ovarian failure usually needs two raised levels of FSH (more than 40 IU/L) taken at least four weeks apart. In this question, since she is amenorrheic with raised FSH and LH and a normal prolactin level, the most likely diagnosis would be premature ovarian failure. Women with premature ovarian failure also have low estradiol (usually < 50 pmol/l).

Premature ovarian failure

Premature ovarian failure (Premature ovarian insufficiency) is defined as the onset of menopausal symptoms and elevated gonadotropin levels before the age of 40 years. It occurs in around 1 in 100 women.

Causes

- Idiopathic - the most common cause
- Chemotherapy (this can be temporary, as recovery of ovarian function can occur, especially in younger women)
- Radiation
- Autoimmune disease
- Bilateral oophorectomy or surgical menopause

Presentation

1. The most common presentation is amenorrhoea or oligomenorrhoea (which may not necessarily be accompanied by hot flashes)
2. Infertility
3. Other features are similar to those of the normal climacteric symptoms:
 - Hot flashes
 - Night sweats
 - Irritability
 - Poor concentration



- Decreased sex drive
- Dyspareunia
- Vaginal dryness

Tests:

FSH levels:

- FSH test should be undertaken in women aged under 40 years in whom menopause is suspected
- Two raised levels (more than 40 IU/L) taken at least four weeks apart are diagnostic

Serum follicle-stimulating hormone (FSH) measurement alone can be used to diagnose the disease. The anterior pituitary secretes FSH and LH at high levels due to the dysfunction of the ovaries and consequent low estrogen levels.

Management:

- hormone replacement therapy (HRT) until at least the average age of the menopause (51 years)

(The average age of the menopause in women in the UK is 51 years)

Important Notes:

Do NOT use early menopause and premature ovarian failure interchangeably

- The term early menopause is used for those women who go through their menopause between 40-45 years

Do NOT use premature menopause and premature ovarian failure interchangeably

- Premature ovarian failure is sometimes referred to as premature menopause, but the two conditions aren't exactly the same. Women with premature ovarian failure may have irregular or occasional periods for years and may even become pregnant. Women with premature menopause stop having periods and can't become pregnant.

- 131.** A 41 year old woman presents with an offensive malodorous vaginal discharge. The discharge is clear in colour and has a distinctive fishy odour. A vaginal pH was taken and found to be 5.7. What is the SINGLE most likely causative organism?

- A. Gardnerella vaginalis**
B. Trichomonas vaginalis
C. Candida albicans
D. Chlamydia trachomatis
E. Neisseria gonorrhoeae

Bacterial vaginosis and Trichomonas vaginalis can give foul smelling discharge.

Bacterial vaginosis which is mostly caused by an overgrowth of Gardnerella vaginalis causes vaginal discharge which is grey-white and has a "fishy" smell. The characteristic "fishy smell" is a clincher and one should pick Bacterial vaginosis (Gardnerella vaginalis) as the answer.



	<p>In trichomonas vaginalis, it can be a greenish and frothy along with vulvovaginitis i.e. strawberry cervix.</p> <p>The discharge of Chlamydia and Gonorrhea is not usually foul smelling.</p> <p>Candida albicans (vaginal candidiasis) has a white, 'cheesy' discharge. The discharge is non-offensive.</p> <p>Bacterial vaginosis</p> <p>Bacterial vaginosis (BV) is caused by an overgrowth of mixed anaerobes, such as Gardnerella vaginalis, which replace the usually dominant vaginal lactobacilli resulting in a raised vaginal pH.</p> <p>It is the commonest cause of abnormal vaginal discharge in women of childbearing age.</p> <p>Whilst BV is not a sexually transmitted infection it is seen almost exclusively in sexually active women.</p> <p>Features</p> <ul style="list-style-type: none">• Vaginal discharge: 'fishy', offensive The characteristic 'fishy' smell is due to the presence of amines released by bacterial proteolysis and is often the reason women attend the clinic• Asymptomatic in 50% <p>Amsel's criteria for diagnosis of BV → 3 out of 4 required for diagnosis:</p> <ul style="list-style-type: none">• Homogenous grey-white discharge• Characteristic fishy smell• 'Clue cells' present on microscopy• Vaginal pH > 5.5 <p>Management</p> <p>May resolve spontaneously and if successfully treated has a high recurrence rate. However, most women prefer it to be treated.</p> <ul style="list-style-type: none">• Metronidazole 400mg orally bd for 5 days or metronidazole 2g (single dose) OR• Clindamycin 2% cream vaginally at night for 7 days
132.	<p>A 31 year old woman who is 32 weeks pregnant attends the antenatal clinic. Her full blood count was taken when she was 28 weeks which results shows a Hb of 10.7 g/dL; MCV=91. What is the SINGLE most appropriate management?</p> <p>A. Folate supplement B. Ferrous sulphate C. Iron dextran D. No treatment required E. Hydroxocobalamin IM</p>



	<p>The values of anaemia differ in pregnancy as compared to a non pregnant women.</p> <p>The British Committee for Standards in Haematology has defined anaemia in pregnancy as the following values Hb levels of: <11.0g/dl in the first trimester <10.5 g/dl in the second and third trimesters <10.0 g/dl in the postpartum period.</p> <p>Since her Hb level is above 10.5g/dL, she does not need iron tablets.</p> <p>This is one of the questions that differ in terms of how you answer in PLAB and how you would act in real life. While the British Committee of Standards in Haematology have gave strict definitions of when to give iron tablets, in real life, many gynaecologist would have prescribed iron tablets in this case. Again, it depends on hospital guidelines. But for the PLAB test, it is important to follow national guidelines.</p>
133.	<p>A 24 year old lady has lower abdominal pain worsening over the last 2 days. She has vaginal discharge and also complains of deep dyspareunia. A Urine HCG is negative. Cervical motion tenderness was noted when doing a pelvic examination. She has a temperature of 38.4°C. Her blood tests show:</p> <p>White cell count $19 \times 10^9/L$ CRP 110 mg/L</p> <p>She has no significant past medical history. What is the SINGLE most appropriate antibiotic treatment?</p> <p>A. Ofloxacin and metronidazole B. Azithromycin C. Azithromycin and ceftriaxone D. Doxycycline E. Clindamycin</p> <p>OPTIONS FOR MANAGEMENT OF PID Outpatient management of PID</p> <ul style="list-style-type: none">• IM ceftriaxone stat plus oral doxycycline and oral metronidazole for 14 days; or• Ofloxacin and metronidazole orally for 14 days <p>Inpatient management of PID</p> <ul style="list-style-type: none">• IV ceftriaxone and IV doxycycline followed by oral doxycycline and oral metronidazole for 14 days; or• IV ofloxacin and IV metronidazole for a total of 14 days

**Pelvic inflammatory disease (PID)**

Pelvic inflammatory disease (PID) is a term used to describe infection and inflammation of the female pelvic organs including the uterus, fallopian tubes, ovaries and the surrounding peritoneum. Most commonly caused by ascending infection from the endocervix.

Causative organisms

- Chlamydia trachomatis - the most common cause
- Neisseria gonorrhoeae

Risk factors for PID

- Age <25
- Previous STIs
- New sexual partner/multiple sexual partners
- Uterine instrumentation such as surgical termination of pregnancy
- Intrauterine contraceptive devices
- Post-partum endometritis

Features

- lower abdominal pain
- fever
- deep dyspareunia
- dysuria and menstrual irregularities may occur
- vaginal or cervical discharge
- cervical excitation

Investigation

- screen for Chlamydia and Gonorrhoea

Management

- There are many combinations of antibiotics to treat PID. It is unlikely that the PLAB test would ask you the management of PID. PLAB questions may ask you for the management of cervicitis (but unlikely PID). Remember, cervicitis is not the same as PID.

This is one of the combination examples for treatment of PID:

Outpatients: Ceftriaxone 500 mg as a single intramuscular dose, followed by oral doxycycline 100 mg twice daily plus oral metronidazole 400 mg twice daily, both for 14 days.

Note the differences between acute PID and just cervicitis.

If just cervicitis (Chlamydia)

- Azithromycin 1g single dose (OR doxycycline 100mg bd for 7 days) (both have similar efficacy of more than 95%)

If just cervicitis (Neisseria gonorrhoeae)

- Azithromycin 1g PO and ceftriaxone 500mg IM



	<ul style="list-style-type: none">• RCOG guidelines suggest that in mild cases of PID intrauterine contraceptive devices may be left in. The more recent BASHH guidelines suggest that the evidence is limited but that 'Removal of the IUD should be considered and may be associated with better short term clinical outcomes' <p>Complications</p> <ul style="list-style-type: none">• infertility - the risk may be as high as 10-20% after a single episode• chronic pelvic pain• ectopic pregnancy
134.	<p>A 65 year old woman presents to the breast clinic having noticed that she has had a blood stained discharge from the left nipple. She also has dry skin over the left areola which resembles eczema. On examination, a blood stained discharge with dry flaky skin is noted on the left areola and the nipple was ulcerated. What is the SINGLE most appropriate investigation?</p> <p>A. Fine needle aspiration cytology B. Magnetic resonance imaging C. Punch biopsy D. Open biopsy E. Stereotactic biopsy</p> <p>There is a suspicion of Paget's disease of the breast/nipple here. These are usually diagnosed by having a simple skin punch biopsy.</p> <p>Paget Disease of the Breast/Nipple</p> <p>This is an uncommon breast malignancy with a generally better prognosis than infiltrating ductal carcinoma. The lesion is pruritic and appears red and scaly often located in the nipple spreading to the areola. The skin appearance can mimic dermatitis like eczema or psoriasis. The nipple may become inverted and discharge may occur.</p>
135.	<p>A 31 year old woman who had a normal delivery 4 weeks ago is complaining for feeling tired. A full blood count was taken and results show:</p> <p>Hb 9.3 g/dL MCV 79 fL</p> <p>What is the SINGLE most appropriate management?</p> <p>A. Folate supplement B. Ferrous sulphate C. Iron dextran D. Iron infusion E. No treatment required</p> <p>Iron deficiency anaemia is very common in pregnancy.</p>



	<p>The values of anaemia differ in pregnancy as compared to a non pregnant women.</p> <p>The British Committee for Standards in Haematology has defined anaemia in pregnancy as the following values Hb levels of: < 11.0g/dl in the first trimester < 10.5 g/dl in the second and third trimesters < 10.0 g/dl in the postpartum period.</p> <p>Since her Hb level is below 10g/dL, she should be on oral iron.</p>
136.	<p>A 43 year old woman who is currently 34 weeks pregnant presents with headache, epigastric pain and nausea. She complains of flashing lights. A dipstick shows 2+ protein. Her heart rate is 115 beats/minute. She has a blood pressure of 158/105 mmHg. What is the SINGLE most appropriate initial management?</p> <p>A. Oral labetalol B. Magnesium sulphate C. Corticosteroids D. Emergency C-section E. Mannitol</p> <p>This lady has pre-eclampsia. The first clue in this question stems from her age. One of the risk factors of preeclampsia is an age over 40 or a teenager. Basically, extremes of both ages. Headaches, epigastric pain, flashing lights are all symptoms of preeclampsia which is confirmed by having protein in the urine with a BP > 140/90.</p> <p>The first thing to do here is to lower the blood pressure. Management of pregnancy with pre-eclampsia for moderate hypertension (150/100 to 159/109 mmHg) starts with oral labetalol as first line treatment.</p> <p>Magnesium sulphate is important here as well however labetalol oral should be given first. Remember, the question is asking for the most appropriate INITIAL management. Magnesium sulphate takes awhile to prepare. It is an intravenous medication and usually needs consultant approval and also cardiac monitoring when giving the intravenous MgSO₄. Oral labetalol does not require any of those and it is part of the management as she is hypertensive in this stem.</p> <p>When is magnesium sulphate the answer? According to current NHS guidelines IV magnesium sulphate is administered for:</p> <ul style="list-style-type: none">• Women in a critical care setting who have severe hypertension or severe pre-eclampsia who have or previously had an eclamptic fit.• OR women with severe pre-eclampsia who are in a critical care setting if birth is planned within 24 hours.



Obviously, hospitals have their own local guidelines and many do not follow the above guidance.

Pre-eclampsia

Pre-eclampsia is a condition seen after 20 weeks gestation characterised by pregnancy-induced hypertension in association with proteinuria ($> 0.3\text{g} / 24 \text{ hours}$). Oedema used to be third element of the classic triad but is now often not included in the definition as it is not specific.

Risk factors

- > 40 years old or teenager
- Family history (mother or sister)
- Obesity
- Multiple pregnancy
- Nulliparity
- Pre-existing hypertension or diabetes
- Previous history of pre-eclampsia

Symptoms

- Headache
- Visual disturbance (flashing lights)
- Epigastric or right upper quadrant (RUQ) pain
- Nausea and vomiting
- Rapid oedema (especially on the face)

Note: Symptoms usually occur only with severe disease

Signs

- Hypertension ($>140/90$; severe if $\geq 160/110$).
- Proteinuria ($>300 \text{ mg}$ in 24 hours)
- Hyperreflexia

Management

- Guidelines recommend treating blood pressure $> 150/100 \text{ mmHg}$ although many clinicians have a lower threshold.
- Oral labetalol is now first-line following the 2010 NICE guidelines. Nifedipine and hydralazine would also be an option if PLAB part 1 has them in the question.
- Cure is delivery of placenta. Thus the definitive management is to deliver baby. Unfortunately this needs to be balanced out with gestation as we would not want to deliver a baby too prematurely.



137. A 31 year old woman complains of increased urinary frequency and urinary urgency. She also describes painful voiding. She has dysmenorrhoea, sacral backache with menses and complains of deep dyspareunia. What is the SINGLE most likely diagnosis?

A. Endometriosis

B. Uterine fibroid

C. Cystitis

D. Pyelonephritis

E. Transitional cell carcinoma of the bladder

This is a very uncommon presentation of endometriosis. Note that in some patients with endometriosis, along with the typical symptoms of endometriosis such as dysmenorrhoea and dyspareunia, they have increased urinary frequency, urgency and painful voiding. Symptoms such as dysuria may be due to the involvement of bladder, peritoneum or invasion into the bladder. Sacral backache with menses are due to the growth and bleeding of the ectopic endometrium. These cyclic symptoms usually precede menses (24 to 48 hours) and continue throughout and after the flow.

Endometriosis

Endometriosis is the presence of endometrial-like tissue outside the uterine cavity. It is oestrogen dependent, and therefore mostly affects women during their reproductive years. If the ectopic endometrial tissue is within the myometrium itself it is called adenomyosis.

Up to 10-12% of women have a degree of endometriosis

Clinical features

- Chronic pelvic pain (cyclic or constant)
- Dysmenorrhoea - pain often starts days before bleeding
- Deep dyspareunia (indicates possible involvement of uterosacral ligaments)
- Subfertility

Investigation

- Laparoscopy is the gold-standard investigation
- Transvaginal ultrasound scanning appears to be a useful test, both to make and to exclude the diagnosis of an ovarian endometrioma

Management

- NSAIDs to treat pain
- Combined oral contraceptive pill (other hormonal drugs can be used too)
- Levonorgestrel intrauterine system

Note: Drug therapy unfortunately does not seem to have a significant impact on fertility rates



	<p>Surgery</p> <ul style="list-style-type: none">Laparoscopic excision and ablation of endometrioid lesions helps reduce endometriosis-associated pain. Laparoscopic excision and ablation of endometriotic ovarian cysts may improve fertility.
138.	<p>A 42 year old pregnant woman at 38 weeks gestation has an eclamptic fit in the labour ward which has been ongoing and started 10 minutes ago. She had severe pre-eclampsia which was diagnosed when she was 35 weeks gestation. She was given a loading dose of magnesium sulfate several hours ago and is currently on a maintenance dose. When she was last examined, there was loss of patellar reflexes and she was feeling nauseous and warm. What is the SINGLE most appropriate next step?</p> <p>A. A further bolus of 2 g magnesium sulphate B. Increase infusion rate of magnesium sulphate C. Intravenous hydralazine D. Immediate delivery of baby E. Administer diazepam</p> <p>This lady is having a seizure but at the same time she is experiencing signs and symptoms of magnesium sulphate toxicity.</p> <p>Magnesium sulphate toxicity is characterized by confusion, loss of reflexes (deep tendon reflexes), respiratory depression, and hypotension. In obstetric woman with magnesium sulphate toxicity, the following need to be performed:</p> <p><i>If only loss of patellar reflex or respiratory rate less than 10 breaths/minute:</i></p> <ol style="list-style-type: none">Stop magnesium sulphate maintenance infusionSend magnesium sulphate levels to laboratory urgentlyConsider administration of intravenous calcium gluconate 1 g (10 ml) over 10 minutes if there is concern over respiratory depression. <i>Calcium gluconate is the antidote</i>Withhold further magnesium sulphate until patellar reflexes return or blood magnesium sulphate level known <p><i>If cardiorespiratory arrest (due to magnesium sulphate toxicity)</i></p> <ol style="list-style-type: none">Crash callPosition woman in left lateral tilt position and initiate CPRStop magnesium sulphate maintenance infusionAdminister intravenous calcium gluconate 1 g (10 ml) over 10 minutes. <i>Calcium gluconate is the antidote</i>Intubate immediately and manage with assisted ventilation until resumption of spontaneous respirationsSend magnesium sulphate levels to laboratory urgently <p>In general we do not use diazepam or phenytoin as an alternative to magnesium sulphate in women with eclampsia. However, since she is still having a fit, and magnesium sulphate toxicity is suspected, we are not able to use magnesium sulphate and thus diazepam would</p>



	<p>be the option here. Note however, we would only use it as a single dose, since prolonged use of diazepam is associated with an increase in maternal death.</p> <p>If there were no features of magnesium sulphate toxicity in this question, recurrent seizures are treated with either a further bolus of 2 g magnesium sulphate or an increase in the infusion rate to 1.5 g or 2.0 g/hour.</p> <p>The fetus should be continuously monitored with CTG. The woman in this stem is 38 weeks pregnant, and so plans for delivery should be made once stabilised but there is no particular hurry and a delay of several hours to make sure the correct care is in hand is acceptable assuming that there is no acute fetal concern such as a fetal bradycardia.</p>
139.	<p>A 23 year old woman who is 28 weeks pregnant presents with vaginal bleeding. She has lost about 200 ml of blood vaginally. On examination, she has a soft abdomen but has lower abdominal tenderness.. A full blood count and a group and hold has been taken. Intravenous fluids has been started. Her observations are currently stable. What is the SINGLE most important investigations to establish a diagnosis?</p> <p>A. Ultrasound B. Computed tomography C. D-dimer test D. Clotting profile E. Kleihauer blood test</p> <p>Antepartum haemorrhage is seen here. Two of the most common causes are placental abruption and placenta praevia. Other causes include local causes like bleeding from the vulva, vagina or cervix (cervical polyp or cervical carcinoma). It is not uncommon to fail to identify a cause for APH (over 30% of APH are of unknown origin)</p> <p>The most important investigation is an ultrasound. This helps us rule out causes such as placenta praevia if the placenta is seen to be high. Usually, pregnant women would have had a scan at 20 weeks which would show the location of the placenta. Note that placenta praevia is usually painless bleeding.</p> <p>Placenta abruption is a clinical diagnosis and should be considered if the pain is continuous. The abdominal pain usually has a sudden onset.</p> <p>Vasa praevia would also be in the differential as it is another cause of painless bleeding vaginally.</p> <p>Kleihauer is an important test to perform for any woman with a significant antepartum haemorrhage who is rhesus negative. It is a blood test used to measure the amount of fetal haemoglobin transferred from a fetus to a mother's bloodstream. Note however that this question is clearly asking about investigations that would lead to a diagnosis. Kleihauer test will give not provide any input for a differential. It is merely a test to determine the required dose of anti-D immunoglobulins to inhibit the formation of Rh antibodies in a Rh negative mother to prevent Rh disease in future pregnancies with a Rhesus positive fetus.</p>



	<p>It is worth mentioning that if the question was asking for the SINGLE best action and a CTG was within one of the options, that would usually be the best action. The reason behind this is placenta abruption is part of the differential and if the CTG shows fetal distress, the baby would need to be delivered immediately. There is no time to wait around for an ultrasound with a Rhesus positive fetus.</p>
140.	<p>An 8 week pregnant woman presents with persistent nausea and vomiting and a history of weight loss. She has a pulse of 110 beats/minute. Her dehydration has been managed with sodium chloride 0.9% with added potassium chloride. She continues to vomit several times during the day despite being given intramuscular cyclizine. What is the SINGLE next most appropriate management?</p> <p>A. Intravenous hartmann's solution B. Intravenous antiemetics C. Intravenous corticosteroids D. Medical termination of her pregnancy E. Oral thiamine</p> <p>This is a case of hyperemesis gravidarum. Intravenous fluids is the most important part of management to ensure that the patient is not dehydrated. As this has already been given and dehydration managed, intravenous antiemetics is the next best answer since only intramuscular cyclizine has been given. Regular antiemetics such as promethazine or cyclizine are often tried first in many early pregnancy units. If this fails, prochlorperazine intramuscularly or orally can be added on. If patient continues to vomit, intravenous metoclopramide or ondansetron can be used on top of the already prescribed regular antiemetics.</p> <p>Advice such as eat little and often should be given.</p> <p>Thiamine is also used in hyperemesis gravidarum and should ideally be given to all women admitted with prolonged vomiting. This is to prevent Wernicke's encephalopathy which is due to vitamin B1 (thiamine) deficiency. However, the importance of thiamine in an acutely vomiting woman is less compared to having intravenous antiemetics.</p> <p>Intravenous corticosteroids is NOT the answer here and whoever tells you otherwise has clearly not worked in obstetrics and gynaecology. Corticosteroids may be used for intractable cases of severe hyperemesis gravidarum in secondary care but this is usually a consultant decision and all other measures such as intravenous antiemetics have been taken to attempt to manage the patient's vomiting. The usual regimen of corticosteroids if needed would be hydrocortisone 100 mg BD intravenously for 48 hour followed by prednisolone 30 to 40 mg PO daily.</p> <p>Hyperemesis Gravidarum</p> <p>Nausea and vomiting are common in early pregnancy. When it is severe or prolonged it is called hyperemesis gravidarum.</p>



	<p>Symptoms usually begin between 6-8 weeks: peak at 12 weeks and usually resolve by 20 week</p> <p>Symptoms</p> <ul style="list-style-type: none">• Nausea• Vomiting• Food and fluid intolerance• Lethargy <p>Signs</p> <ul style="list-style-type: none">• Ketonuria• Weight loss > 5%• Tachycardia• Signs of dehydration:<ul style="list-style-type: none">◦ Decreased skin turgor◦ Prolonged capillary refill◦ Sunken eyes <p>Management</p> <ul style="list-style-type: none">• IV fluids<ul style="list-style-type: none">◦ If potassium is found to be low i.e. < 3.5 mmol, sodium chloride 0.9% with 20-40 mmol/litre potassium chloride (KCl) is usually added• Antiemetics<ul style="list-style-type: none">◦ Promethazine or cyclizine first-line◦ Metoclopramide, prochlorperazine or ondansetron second-line
141.	<p>A 26 year old lady presents with worsening lower abdominal pain and purulent vaginal discharge. She was recently treated for pelvic inflammatory disease with antibiotics as an outpatient but did not complete her course of antibiotics. A urine HCG is negative. Cervical motion tenderness was noted when doing a pelvic examination. She has a temperature of 38.6°C and a pulse rate of 95 beats/minute. What is the SINGLE most appropriate management?</p> <p>A. Oral tetracycline 250mg QDS B. Oral doxycycline 100mg BD and oral metronidazole 400mg BD C. Intravenous ceftriaxone 2g OD with oral doxycycline 100mg BD D. Intravenous ceftriaxone 2g OD only E. Oral ofloxacin 400mg BD and oral metronidazole 400mg BD</p> <p>This patient clearly needs to be admitted for antibiotics. An outpatient therapy has already failed. She has signs and symptoms of pelvic inflammatory disease. She has a high temperature and tachycardia.</p> <p>One of the more common inpatient regimens for pelvic inflammatory disease is IV ceftriaxone 2g daily plus IV doxycycline 100mg twice daily (oral doxycycline may be used if tolerated) followed by oral doxycycline 100mg twice daily plus oral metronidazole 400mg</p>



twice daily for a total of 14 days. Intravenous therapy should be continued until 24 hours after clinical improvement and then switched to oral.

Although it's stated that we use intravenous doxycycline as part of the antibiotic regimen, this is usually not the case as Intravenous doxycycline is not currently licensed in the UK.

OPTIONS FOR MANAGEMENT OF PID

Outpatient management of PID

- *IM ceftriaxone stat plus oral doxycycline and oral metronidazole for 14 days; or*
- *Ofloxacin and metronidazole orally for 14 days*

Inpatient management of PID

- *IV ceftriaxone and IV doxycycline followed by oral doxycycline and oral metronidazole for 14 days; or*
- *IV ofloxacin and IV metronidazole for a total of 14 days*

Pelvic inflammatory disease (PID)

Pelvic inflammatory disease (PID) is a term used to describe infection and inflammation of the female pelvic organs including the uterus, fallopian tubes, ovaries and the surrounding peritoneum. Most commonly caused by ascending infection from the endocervix.

Causative organisms

- Chlamydia trachomatis - the most common cause
- Neisseria gonorrhoeae

Risk factors for PID

- Age < 25
- Previous STIs
- New sexual partner/multiple sexual partners
- Uterine instrumentation such as surgical termination of pregnancy
- Intrauterine contraceptive devices
- Post-partum endometritis

Features

- Lower abdominal pain
- Fever
- Deep dyspareunia
- Dysuria and menstrual irregularities may occur
- Vaginal or cervical discharge
- Cervical excitation

Investigation

- Screen for Chlamydia and Gonorrhoea



	<p>Management</p> <ul style="list-style-type: none">• There are many combinations of antibiotics to treat PID. It is unlikely that the PLAB test would ask you the management of PID. PLAB questions may ask you for the management of cervicitis (but unlikely PID). Remember, cervicitis is not the same as PID. <p>This is one of the combination examples for treatment of PID: Outpatients: Ceftriaxone 500 mg as a single intramuscular dose, followed by oral doxycycline 100 mg twice daily plus oral metronidazole 400 mg twice daily, both for 14 days.</p> <p>Note the differences between acute PID and just cervicitis. If just cervicitis (Chlamydia)</p> <ul style="list-style-type: none">• Azithromycin 1g single dose (OR doxycycline 100mg bd for 7 days) (both have similar efficacy of more than 95%) <p>If just cervicitis (Neisseria gonorrhoeae)</p> <ul style="list-style-type: none">• Azithromycin 1g PO and ceftriaxone 500mg IM• RCOG guidelines suggest that in mild cases of PID intrauterine contraceptive devices may be left in. The more recent BASHH guidelines suggest that the evidence is limited but that 'Removal of the IUD should be considered and may be associated with better short term clinical outcomes' <p>Complications</p> <ul style="list-style-type: none">• infertility - the risk may be as high as 10-20% after a single episode• chronic pelvic pain• ectopic pregnancy
142.	<p>A 31 year old pregnant woman has her antenatal screening at her booking appointment for HIV and Hepatitis B status. What other routine investigations are ordered at booking?</p> <p>A. Rubella susceptibility and syphilis screen B. Toxoplasma immunoglobulins and rubella susceptibility C. Toxoplasma immunoglobulins and syphilis screen D. Hepatitis C status E. Measles susceptibility</p> <p>The following are routine blood tests performed at booking</p> <ul style="list-style-type: none">• Blood Group and antibodies• Rhesus status• Haemoglobinopathies• Syphilis• Hepatitis B status• HIV• Full blood count looking for anaemia• Rubella susceptibility



143. A 31 year old woman presents to the emergency department with a lower abdominal pain and per vaginal bleeding one day after having a hysterosalpingography as a part of her infertility treatment. Her blood pressure is 85/50 mmHg and pulse rate is 125 beats/minute. On examination, the abdomen is rigid and tender. What is the SINGLE most appropriate next step in investigation?

- A. Computed tomography
- B. Abdominal X-ray erect and supine
- C. Ultrasound abdomen and pelvis**
- D. Coagulation profile
- E. Beta hCG

A hysterosalpingography is a type of radiographic evaluation that looks at the uterus and fallopian tubes predominantly as part of investigation for infertility. It uses a contrast material that is injected into the cervical canal that appears on real-time X-ray (fluoroscopy) to visualise the fallopian tubes to determine if the tubes are partially or fully blocked. If the fallopian tubes are patent, the contrast medium will fill the tubes and spill out into the abdominal cavity.

Complications associated with a hysterosalpingogram include the possibility of an allergic reaction to the dye or infection (endometritis or salpingitis), which are uncommon. Uterine perforation or fallopian tube perforation like in this stem are also possible complications, but these are very rare.

If a perforation were to occur, the patient may have bleeding intraabdominally and an ultrasound scan would be a good start to evaluate the severity of the bleeding. The picture given in this stem with a low BP, rapid heart rate, abdominal rigidity and absent rash does point towards a likely intra abdominal bleed.

In a real clinical setting, a laparoscopy or laparotomy would be a more suitable option as she is clinically unstable. As these options are not provided, ultrasound would be the next best investigation.

144. A 52 year old woman has hot flashes, night sweats and insomnia. She also complains of vaginal dryness and symptoms of urinary frequency. Her last menstrual period was 11 months ago. Her medical history includes having a myocardial infarction when she was 48 years old. What is the SINGLE most appropriate management for her?

- A. Raloxifene
- B. Oestrogen and progestogen patches**
- C. Combined oral contraceptive pills
- D. Topical oestrogen
- E. Clonidine

Hormone replacement therapy like oestrogen and progestogen patches are indicated here as she is having menopausal symptoms. This systemic treatment can also alleviate symptoms of vaginal dryness and symptoms of urinary frequency.



	<p>A vaginal oestrogen cream or pessary would be appropriate if the patient only had symptoms of vaginal dryness without the other symptoms of menopause like hot flushes. In such cases, there is no need for a systemic treatment as topical treatment can alleviate symptoms.</p> <p>The history of a myocardial infarction is irrelevant. The relation between HRT and cardiovascular disease is controversial. The National Institute for Health and Care Excellence (NICE) states that HRT does not increase cardiovascular risk when started in women aged under 60 years and does not affect the risk of dying from cardiovascular disease and hence the presence of cardiovascular risk factors is NOT a contraindication to HRT.</p> <p>Hormone replacement therapy (HRT) indications</p> <p>Hormone replacement therapy (HRT) involves the use of a small dose of oestrogen, combined with a progestogen (in women with a uterus), to help alleviate menopausal symptoms.</p> <p>Current indications for the use of HRT are:</p> <ul style="list-style-type: none">• Vasomotor symptoms such as flushing, including sleep, mood disturbance and headaches• For women with early menopause. They should be treated with HRT until the age of natural menopause (around 51 years). The most important reason for HRT in this group is preventing the development of osteoporosis• For those women under 60 years who are at risk of an osteoporotic fracture in whom non-oestrogen treatments are unsuitable <p>It is especially important to note that other indications such as reversal of vaginal atrophy should be treated with topical oestrogens.</p>
145.	<p>A 34 year old lady comes to the GP for removal of an intrauterine device. On speculum examination, the cervix is visualised but the intrauterine device thread is not seen. Her last menstrual period is 2 weeks ago and she has been having regular sexual intercourses with her partner. What is the SINGLE most appropriate next step?</p> <p>A. Transabdominal ultrasound B. Transvaginal ultrasound C. Abdominal X-ray D. Combined oral contraceptive pill E. Repeat speculum examination under general anaesthesia</p> <p>Transvaginal ultrasound is a good step to locate if the intrauterine device is still intrauterine, displaced or fallen out. It is unlikely that it has perforated the uterus as if so, the patient would be presenting with an acute abdomen. Transvaginal ultrasound has better image quality when looking at the uterus compared to a transabdominal ultrasound. An X-ray is capable of seeing the intrauterine device as well but it is reserved for more acute presentations like suspected perforation or when the IUD is not seen on a ultrasound scan.</p> <p>Combined oral contraceptives are not completely wrong as if there was a delay in obtaining the ultrasound scan, it may be necessary to start the woman on a form of contraception until</p>



	<p>the ultrasound scan can be performed. However, the option of having a transvaginal ultrasound is still the best choice among the rest.</p>
146.	<p>A 26 year old woman has been found to have mild dyskaryosis on a routine cervical screening test. She is a heavy smoker. What is the SINGLE most appropriate next step in action?</p> <p>A. Colposcopy B. Repeat cervical smear in 4 months C. Cone biopsy D. Large loop excision of the transformation zone (LLETZ) procedure E. Endocervical swab</p> <p>The first step is understanding that mild dyskaryosis needs a referral to colposcopy. "Repeating cervical smear in 4 months" is the first option to be crossed out.</p> <p>The second step is understanding what a colposcopy includes. A colposcopy involves visualising the cervix using a microscope. A speculum is used to open the vagina and the cervix is stained with acetic acid in the area of the transformation zone (TZ) to identify the site, grade and shape of any abnormal area of cells. Iodine is then gently applied to the rest of the cervix to identify the complete area of abnormality. A small biopsy is usually taken to be sent to the laboratory. When an area of abnormality extends into the cervical canal beyond the area that can be seen with the colposcope, a cone biopsy is indicated. We need a colposcopy first before we can be certain if a cone biopsy is required, hence the option for cone biopsy is incorrect.</p> <p>Large loop excision of the transformation zone (LLETZ) takes place at the end of colposcopy if abnormality is obvious on colposcopy or for women who have had a positive biopsy result. Therefore if the option for colposcopy is present, that would take priority over the option for LLETZ since the question is asking for "the next step in action".</p> <p>Endocervical swabs have no value in management of cervical screening test. Endocervical swabs are used to diagnose chlamydia or gonorrhoea.</p>
147.	<p>A 30 year old woman attends clinic asking for a reversible form of contraception. Her obstetric history is significant for a previous caesarean section one year ago. She is known to have menorrhagia and dysmenorrhoea. What is the SINGLE most appropriate contraceptive for her?</p> <p>A. Combined oral contraceptive pills B. Progestogen-only pill C. Implanon D. Copper intrauterine contraceptive device E. Levonorgestrel intra-uterine system</p> <p>A previous caesarean is not a contraindication for a levonorgestrel intra-uterine system. Among the options, levonorgestrel intra-uterine system (Mirena coil) is the best treatment to reduce menorrhagia. It is currently first-line treatment for menorrhagia in the UK.</p>



	<p>Copper intrauterine contraceptive device and Implanon are more prone to have irregular heavy bleedings compared to levonorgestrel intra-uterine system (Mirena coil).</p>
148.	<p>A 34 year old woman develops a fit 6 hours after having a spontaneous vaginal delivery of a healthy term baby. She has no history of having high blood pressure and has not had a seizure before. What is the SINGLE most likely diagnosis?</p> <p>A. Eclampsia B. Preeclampsia C. Epilepsy D. Pulmonary embolism E. Pregnancy induced hypertension</p> <p>It is very unlikely for eclamptic fits to occur with no history of proteinuria or high blood pressure in the past. But given that she is pregnant and just delivered, it is the most likely given the options.</p> <p>Eclampsia does occur in the postpartum period as well as antenatally. This is why it is common practice to keep patients with severe pre-eclampsia in hospital for the next few days post delivery even though the delivery was uncomplicated.</p>
149.	<p>An 11 week pregnant woman presents with severe vomiting and nausea. She has been feeling nauseous for the past few days. A urinalysis shows 2+ ketones. What is the SINGLE most appropriate action?</p> <p>A. Ultrasound B. Thiamine C. Serum BHCG D. Parenteral antiemetics E. Intravenous fluids</p> <p>This is a case of hyperemesis gravidarum. Intravenous fluids is the most important part of management to ensure that the patient is not dehydrated. If this has already been given and dehydration managed, intravenous antiemetics is the next best answer. Regular antiemetics such as promethazine or cyclizine are often tried first in many early pregnancy units. If this fails, prochlorperazine intramuscularly or orally can be added on. If patient continues to vomit, intravenous metoclopramide or ondansetron can be used on top of the already prescribed regular antiemetics.</p> <p>Advice such as eat little and often should be given.</p> <p>Thiamine is also used in hyperemesis gravidarum and should ideally be given to all women admitted with prolonged vomiting. This is to prevent Wernicke's encephalopathy which is due to vitamin B1 (thiamine) deficiency. However, the importance of thiamine in an acutely vomiting woman is less compared to having intravenous antiemetics.</p>



	<p>Hyperemesis Gravidarum</p> <p>Nausea and vomiting are common in early pregnancy. When it is severe or prolonged it is called hyperemesis gravidarum.</p> <p>Symptoms usually begin between 6-8 weeks: peak at 12 weeks and usually resolve by 20 week</p> <p>Symptoms</p> <ul style="list-style-type: none">• Nausea• Vomiting• Food and fluid intolerance• Lethargy <p>Signs</p> <ul style="list-style-type: none">• Ketonuria• Weight loss > 5%• Tachycardia• Signs of dehydration:<ul style="list-style-type: none">◦ Decreased skin turgor◦ Prolonged capillary refill◦ Sunken eyes <p>Management</p> <ul style="list-style-type: none">• IV fluids<ul style="list-style-type: none">◦ If potassium is found to be low i.e. < 3.5 mmol, sodium chloride 0.9% with 20-40 mmol/litre potassium chloride (KCl) is usually added• Antiemetics<ul style="list-style-type: none">◦ Promethazine or cyclizine first-line◦ Metoclopramide, prochlorperazine or ondansetron second-line
150.	<p>A 26 year old woman presents with vaginal bleeding. She has a positive pregnancy test and her last menstrual period was 10 weeks ago. She has been having a lost of appetite, nausea and vomiting for the past two weeks. On palpation, her symphyseal fundal height is 16cm. On speculum examination, the cervical os is seen as closed. What is the SINGLE most likely diagnosis?</p> <p>A. Thyrotoxicosis B. Threatened miscarriage C. Twin pregnancy D. Hyperemesis gravidarum E. Molar pregnancy</p> <p>The patient is presenting with classical features of molar pregnancy which are uterus large for dates, first trimester bleeding, hyperemesis. This is a presentation that is also similar to multiple pregnancies like twin pregnancy as they are also at increased risk of bleeding, hyperemesis and have a uterus that is larger for dates. However, in multiple pregnancies the</p>



uterus is seen to be larger in the second trimester rather than the first.

Hyperemesis gravidarum is not totally incorrect as this patient does also have a diagnosis of hyperemesis gravidarum as she is seen to be vomiting for the past two weeks. However, the most likely diagnosis is still molar pregnancy given the other features.

Gestational Trophoblastic Disease

Gestational trophoblastic disease (GTD) covers a spectrum of diseases caused by overgrowth of the placenta. It ranges from molar pregnancies to malignant conditions such as choriocarcinoma. If there is any evidence of persistence of GTD the condition is referred to as gestational trophoblastic neoplasia (GTN).

GTD is classified as follows:

Premalignant - hydatidiform mole

- Complete hydatidiform mole (CHM)
- Partial hydatidiform mole (PHM)

Malignant - gestational trophoblastic neoplasia (GTN)

- Invasive mole
- Choriocarcinoma
- Placental site trophoblastic tumour (PSTT)
- Epithelioid trophoblastic tumour (ETT)

The classification of GTD is less important. An exam of this level usually does not require you to know details of types of GTD.

Features:

- Hyperemesis
- Irregular first-trimester vaginal bleeding
- Uterus large for dates
- Vaginal passage of vesicles containing products of conception
- Serum hCG is excessively high with complete moles, but levels may be within the normal range for partial moles.

Ultrasound findings of a complete mole

- 'Snowstorm' appearance of mixed echogenicity, representing hydropic villi and intrauterine haemorrhage
- Large theca lutein cysts

Management of Hydatidiform mole:

- Surgical evacuation (Suction curettage)
 - Note that histological examination of products of conception is essential to confirm diagnosis
- Two-weekly serum and urine samples until hCG concentrations are normal.



	<ul style="list-style-type: none">• Women should be advised not to conceive until hCG level has been normal for 6 months• Barrier contraception should be used until serum hCG is normal• COCP and HRT are safe to use after hCG levels have returned to normal <p>Management of gestational trophoblastic neoplasia (GTN) <i>This is unlikely to be asked in detail in PLAB 1 due to the complexity of the management. But you do need to know it involves chemotherapy</i></p>
151.	<p>A 29 year old at 38 weeks gestation presents with a 2 hours history of constant abdominal pain. While waiting to be seen, she passes 300 ml of blood per vagina. What is the SINGLE most appropriate next step?</p> <p>A. Ultrasounds B. Cardiotocography C. Clotting screen D. Group and save E. Kleihauer Betke test</p> <p>With constant abdominal pain and PV bleeding, placental abruption is one of our differentials. The first and most important step is to put on a cardiotocograph (CTG). If there is fetal distress seen on the CTG, the woman may be rushed for an emergency C-section.</p> <p>As abruption is a clinical diagnosis, an ultrasound would have little value. A CTG is extremely important as a first step to monitor the fetus. Ultrasound would be a good step to perform to rule out placenta praevia if the CTG is found to be reassuring.</p> <p>A group and save is also important as she is having PV bleeding, but the importance of monitoring fetus comes above having a group and save as most maternity units will have O type blood stored in fridge.</p>
152.	<p>A 34 year old African women has been trying to conceive for the past 2 years. She has suffered from heavy menstruations for the past 3 years and a recent transvaginal ultrasound shows two large submucosal fibroids and one intramural fibroid. Her partner has had a sperm analysis which was found to be normal. What is the SINGLE most appropriate management?</p> <p>A. Endometrial ablation B. Myomectomy C. Uterine artery embolisation D. Levonorgestrel intrauterine system E. Gonadotropin-releasing hormone (GnRH) analogue</p> <p>This woman is trying to conceive. The only option to preserve fertility here is a myomectomy.</p> <p>Endometrial ablation is a very good option to decrease menorrhagia however the procedure involves using electrical currents or heated water to destroy the endometrium which could result in infertility. This procedure is therefore NOT recommended for women who still want</p>



	<p>children. It is also important to note that endometrial ablation is not used in patients with large fibroids. It is primarily used in patients with heavy menstrual bleedings due to endometrial hyperplasia without fibroids, but it can also be used to treat small submucosal fibroids.</p> <p>Uterine artery embolisation (UAE) is an alternative procedure to a hysterectomy or myomectomy for treating fibroids. It is performed by radiologist and involves embolizing the uterine arteries to shrink the fibroids. It is recommended for women with large fibroids however it is not recommended if the woman is trying to conceive as it reduces blood to the uterus significantly.</p> <p>The levonorgestrel intrauterine system (LNG-IUS) is a small, plastic, t-shaped device placed in your uterus that slowly releases progestogen. It also acts as a contraceptive and thus should not be used for a woman trying to conceive.</p> <p>GnRH analogues essentially shrink the fibroids however they would grow back once the medication is stopped. Its primary use is so that it is easier to remove the fibroids during surgery. As GnRH analogues inhibit ovulation, it would prevent pregnancy from occurring. This would be a suitable option given that it was combined with a myomectomy.</p> <p>It is also important to note that if she does decide to go for a myomectomy, she would need to be counselled of the risk of uterine rupture in the future if she would become pregnant especially during labour. Her obstetrician would need to weigh the risk and benefits of a normal delivery and consider a caesarean section due to the risk of a uterine rupture.</p>
153.	<p>A 42 year old African lady presents bloating and heavy, regular periods. Her uterine size correlates to a 14 weeks pregnant uterus. What is the SINGLE most likely diagnosis?</p> <p>A. Blood dyscrasia B. Haematoma C. Fibroids D. Adenomyosis E. Incomplete abortion</p> <p>One must remember that uterine fibroids are more commonly found in Afro-Caribbean women. Menorrhagia and a uterus of 14 week size is highly suggestive of a fibroid. A transvaginal ultrasound scan should be performed to assess the fibroid.</p>



154.	<p>A 22 year old woman was prescribed doxycycline for 10 days to treat lyme disease. She has been using combined oral contraceptive pills regularly for the past 6 months. What is the SINGLE most appropriate advice?</p> <p>A. Combined oral contraceptive pills can be used with no additional contraceptive method necessary</p> <p>B. Continue taking combined oral contraceptive pills plus an additional barrier method for 2 days</p> <p>C. Continue taking combined oral contraceptive pills plus an additional barrier method for 10 days</p> <p>D. Stop combined oral contraceptive pill for a week and use barrier methods</p> <p>E. Prescribe doxycycline for 15 days</p> <p>No action needed. Latest recommendations are that no additional contraceptive precautions are required when combined oral contraceptives are used with antibacterials that do not induce liver enzymes, unless diarrhoea or vomiting occur</p>
155.	<p>A 37 year old woman presents with heavy vaginal bleeding for the past several months. A transvaginal ultrasound scan shows a 4 cm anterior subserosal fibroid and a 6 cm fundal intramural fibroid. She would like her fertility preserved. What is the SINGLE most appropriate management?</p> <p>A. Uterine artery embolisation</p> <p>B. Endometrial ablation</p> <p>C. Hysteroscopic myomectomy</p> <p>D. Vaginal hysterectomy</p> <p>E. Abdominal myomectomy</p> <p>Abdominal myomectomy is the most appropriate in this situation. As the fibroids are seen to be subserosal and intramural, an abdominal incision would give us access to these fibroids. A vaginal approach using a hysteroscopy would be a choice for submucosal fibroids but not for intramural and subserosal fibroids.</p> <p>The other options give will affect the patient's fertility.</p>
156.	<p>A 35 year old lady at her 28th week gestation attends her antenatal clinic for a routine check-up. She feels well and has no complains. Her blood pressure is 160/95 mmHg, and her urine dipstick shows 3+ protein. What is the SINGLE most likely diagnosis?</p> <p>A. Essential hypertension</p> <p>B. Gestational hypertension</p> <p>C. Chronic hypertension</p> <p>D. Pre-eclampsia</p> <p>E. Chronic renal failure</p>



Pre-eclampsia

Pre-eclampsia is a condition seen after 20 weeks gestation characterised by pregnancy-induced hypertension in association with proteinuria ($> 0.3\text{g} / 24 \text{ hours}$). Oedema used to be third element of the classic triad but is now often not included in the definition as it is not specific.

Risk factors

- > 40 years old or teenager
- Family history (mother or sister)
- Obesity
- Multiple pregnancy
- Nulliparity
- Pre-existing hypertension or diabetes
- Previous history of pre-eclampsia

Symptoms

- Headache
- Visual disturbance (flashing lights)
- Epigastric or right upper quadrant (RUQ) pain
- Nausea and vomiting
- Rapid oedema (especially on the face)

Note: Symptoms usually occur only with severe disease

Signs

- Hypertension ($>140/90$; severe if $\geq 160/110$).
- Proteinuria ($>300 \text{ mg}$ in 24 hours)
- Hyperreflexia

Management

- Guidelines recommend treating blood pressure $> 150/100 \text{ mmHg}$ although many clinicians have a lower threshold.
- Oral labetalol is now first-line following the 2010 NICE guidelines. Nifedipine and hydralazine would also be an option if PLAB part 1 has them in the question.
- Cure is delivery of placenta. Thus the definitive management is to deliver baby. Unfortunately this needs to be balanced out with gestation as we would not want to deliver a baby too prematurely.



157.	<p>A 29 year old woman's recent cervical smear results show inflammatory changes without any dyskaryosis. She has no pelvic or vaginal pain. There was no discharge on examination. Speculum examination had shown a normal cervix and vaginal mucosa. What is the SINGLE most appropriate action?</p> <p>A. Repeat smear in 3 years B. Repeat smear in 6 months C. Repeat smear urgently D. Perform an endocervical swab E. Refer to colposcopy clinic</p> <p>The results that show inflammatory changes are nonspecific. These findings are difficult to interpret. It may be non significant or it may also represent genital infections like candida amongst others. Inflammation is usually not a worrying sign unless it is severe in which case we may consider a more serious sexual transmitted infection.</p> <p>It is good practice to repeat the smear in 6 months to ensure that the inflammation has resolved.</p>
158.	<p>A 38 year old lady presents with urinary incontinence. She says that she urinates a little everytime she sneezes or coughs. On a speculum examination, there was no anatomical abnormalities. What is the SINGLE most appropriate next step in management?</p> <p>A. Antibiotics B. Topical oestrogen C. Ring pessary D. Duloxetine E. Pelvic floor exercise</p> <p>This lady is suffering from stress incontinence as evident by small amounts of urine leakage when she sneezes or coughs. The best management would be pelvic floor exercises.</p> <p>Ring pessary is of no use here as there is no cystocele.</p> <p>Loss of weight, and reducing caffeine are other lifestyle modifications that could be effective but were not given in this questions.</p>
159.	<p>What is the recommended time to administer anti-D immunoglobulins to a previously non sensitised rhesus negative mother after delivery?</p> <p>A. 24 hours B. 48 hours C. 72 hours D. 10 days E. 14 days</p>



	<p>Following potentially sensitising events which include giving birth, anti-D immunoglobulins should be administered as soon as possible and always within 72 hours of the sensitising event. If this deadline has not been met and 72 hours has passed, you can still administer anti-D immunoglobulins up to 10 days as there may still be some protection offered during this time if anti-D immunoglobulins is administered.</p>
160.	<p>A 16 year old girl has complains of dysmenorrhoea, menorrhagia and irregular menstrual cycles. This complains started a few years ago and has gotten worse with time. Her period pain is so intense that she occasionally has to skip school to stay at home. She has not tried any medication to manage her symptoms. She is not currently sexually active. What is the SINGLE most likely management to treat her symptoms?</p> <p>A. Tranexamic acid B. Combined oral contraceptive pills C. Endometrial ablation D. Levonorgestrel intra-uterine system E. Mefenamic acid</p> <p>In clinical practice, a general practitioner is likely going to prescribe tranexamic acid with mefenamic acid as first line to manage the dysmenorrhoea and menorrhagia before attempting combined oral contraceptive pills. As this combination is not provided, the best answer would be combined oral contraceptive pills. This would deal with all her presenting complaints.</p> <p><i>The summary to answering these type of questions are as bellow:</i></p> <ul style="list-style-type: none">• <i>Dysmenorrhoea in a young girl → Mefenamic acid</i>• <i>Dysmenorrhoea, menorrhagia, and irregular menstrual cycles in a young girl → COCP</i>• <i>Dysmenorrhoea, menorrhagia, and irregular menstrual cycles in sexually active women (or para≥1) → Levonorgestrel intra-uterine system</i>
161.	<p>A 30 year old lady presents to the outpatient clinic with difficulty in conceiving for the past 2 years. She and her husband have been trying to achieve pregnancy for more than 2 years and have been unsuccessful. There is no previous history of pelvic inflammatory disease. She has a BMI of 23. She has a regular 32 day menstrual cycle. What is the SINGLE most appropriate test to perform to assess ovulation?</p> <p>A. Follicular stimulating hormone (FSH) and luteinizing hormone (LH) B. Day 21 progesterone C. Day 25 progesterone D. Day 28 progesterone E. Oestrogen levels</p> <p>Serum progesterone (Mid-luteal cycle progesterone) is tested one week before a menstrual period is expected. Example, on day 21 of a 28 day menstrual cycle. In this case, since she has regular 32 day menstrual cycles, the serum progesterone should be taken on day 25 (32 days - 7 days = day 25).</p>



	<p>A serum progesterone more than 30 nmol/L is consistent with ovulation and no further biochemical assessment is required.</p> <p>As part of the management for infertility, FSH and LH is usually taken in clinics. However in this context, since her menses are regular, it is less important. It is usually measured if there is menstrual irregularity to help exclude conditions like premature ovarian insufficiency (LH and FSH both raised), polycystic ovarian syndrome (LH:FSH ratio increased) and hypogonadotropic hypogonadism (LH and FSH reduced).</p>
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SAMPLE



SAMPLE



OPHTHALMOLOGY



1.	<p>A 17 year old has acute pain around his right eye that started a week ago with blistering inflamed rashes in the dermatome distribution of the ophthalmic division of the trigeminal nerve. What is the SINGLE most likely diagnosis?</p> <p>A. Postherpetic neuralgia B. Herpes simplex C. Ramsay Hunt syndrome D. Cellulitis E. Herpes zoster ophthalmicus</p> <p>Herpes zoster ophthalmicus</p> <p>Herpes zoster ophthalmicus (HZO) describes the reactivation of the varicella zoster virus in the area supplied by the ophthalmic division of the trigeminal nerve. It accounts for around 10-20% of case of shingles. Ophthalmic herpes is a danger to sight and the patient should see an ophthalmologist the same day.</p> <p>Features</p> <ul style="list-style-type: none">- Vesicular rash around the eye, which may or may not involve the actual eye itself- Hutchinson's sign: rash on the tip or side of the nose. Indicates nasociliary involvement and is a strong risk factor for ocular involvement <p>Management</p> <ul style="list-style-type: none">- Oral antiviral treatment- Oral corticosteroids may reduce the duration of pain- Ocular involvement requires urgent ophthalmology review <p>Complications</p> <ul style="list-style-type: none">- Ocular: conjunctivitis, keratitis, episcleritis, anterior uveitis- Ptosis- Post-herpetic neuralgia <p>Keratitis is a condition in which the eye's cornea, the front part of the eye, becomes inflamed. Another infectious cause of keratitis is Herpes simplex keratitis in which case presents with a dendritic corneal ulcer. For herpes simplex keratitis, topical acyclovir is used</p>
2.	<p>A 55 year old man presents with a mild headache, ocular pain and a red eye. He also complains of nausea. He has intermittent blurring of vision with haloes. There was no history of trauma. Palpation of the globe of the eye reveals it to be hard. What is the SINGLE most appropriate management?</p> <p>A. Panretinal photocoagulation B. Pilocarpine eye drops C. Propranolol D. Scleral buckling E. Analgesia and rest</p>



Acute angle closure glaucoma

Also called acute glaucoma or narrow-angle glaucoma

In acute angle closure glaucoma (AACG) there is a rise in IOP secondary to an impairment of aqueous outflow. Factors predisposing to AACG include:

- hypermetropia (long-sightedness)
- pupillary dilatation

It presents with an eye that is red, severely painful, and associated with a semi-dilated non-reacting pupil. Headaches and decreased visual acuity are common. Symptoms worsen with mydriasis (e.g. watching TV in a dark room). Coloured haloes around lights may be seen by patients. Palpation of the globe will reveal it to be hard. Corneal oedema results in dull or hazy cornea. Systemic upset may be seen, such as nausea and vomiting and even abdominal pain.

Note: The acute attack is usually unilateral; however, long-term management will be to both eyes.

Medical

Initial medical treatment typically involves all topical glaucoma medications that are not contra-indicated in the patient, together with intravenous acetazolamide.

Topical agents include:

- Beta-blockers - eg, timolol, cautioned in asthma.
- Steroids - prednisolone 15 every 15 minutes for an hour, then hourly
- Pilocarpine 1-2%
- Acetazolamide is given intravenously (500 mg over 10 minutes) and a further 250 mg slow-release tablet after one hour
- Offer systemic analgesia \pm antiemetics.

This should tide the patient over until they are able to be seen by a duty ophthalmologist who will assess the situation at short intervals until the acute attack is broken. These treatments may be repeated depending on the IOP response and a combination of these medications will be given to the patient on discharge. The patient will remain under close observation (eg, daily clinic reviews or as an inpatient). Subsequent treatment is aimed at specific mechanism of closure.

Surgical

Peripheral iridotomy (PI)

- This refers to (usually two) holes made in each iris with a laser. This is to provide a free-flow transit passage for the aqueous. Both eyes are treated, as the fellow eye will be predisposed to an AAC attack too. This procedure can usually be carried out within a week of the acute attack, once corneal oedema has cleared enough to allow a good view of the iris.



	<p><i>Surgical iridectomy</i></p> <ul style="list-style-type: none">- This is carried out where PI is not possible. It is a less favoured option, as it is more invasive and therefore more prone to complications.
3.	<p>A 60 year old man experienced sudden painless loss of vision. On ophthalmoscopy, multiple flame shaped hemorrhages were seen scattered throughout his fundus. What is the SINGLE most likely diagnosis?</p> <p>A. Central retinal artery occlusion B. Central retinal vein occlusion C. Acute glaucoma D. Retinitis pigmentosa E. Optic neuritis</p> <p>Central Retinal Vein Occlusion (CRVO):</p> <p><u>Clinical Presentation</u> These patients have a clinical presentation similar to those with retinal artery occlusion. There is the sudden loss of vision without pain, redness, or abnormality in pupillary dilation. Ocular examination by funduscopy reveals disk swelling, venous dilation, tortuosity, and retinal haemorrhages.</p> <p><u>Diagnosis</u> Retinal haemorrhages are the main way of distinguishing venous obstruction from arterial obstruction. You cannot have a hemorrhage in the retina if you don't have blood getting into the eye.</p> <p><u>Treatment</u> Treatment of CRVO is beyond the scope of what you need to know for the PLAB 1 exam but it involves immediate referral to an ophthalmologist and/or intra-vitreous steroids</p>
4.	<p>A 34 year old man has an acute painful, red right eye for the last 24 hours. He complains of blurring of vision. He has a past medical history of cervical spondylitis and is on chronic diclofenac treatment for the past 4 years for back pain and stiffness. On examination, his pupil is irregular in shape and he is very sensitive to light. What is the SINGLE most likely clinical diagnosis?</p> <p>A. Acute close-angle glaucoma B. Conjunctivitis C. Episcleritis D. Iridocyclitis E. Keratitis</p> <p>Because of this patient's past medical history of cervical spondylitis, iridocyclitis is the most likely answer.</p>



Please note the following for PLAB 1:

1. Anterior uveitis is also referred to as iritis and iridocyclitis
2. Intermediate uveitis is also known as pars planitis or vitritis
3. Posterior uveitis is also called chorioretinitis
4. In the UK, the most common cause of chronic anterior uveitis is sarcoidosis
5. In the UK, the most common form of uveitis is anterior uveitis

Anterior uveitis

- Also referred to as iritis. It is one of the important differentials of a red eye.

Presentation

- Symptoms may develop over hours or days (acute anterior uveitis), or onset may be gradual (chronic anterior uveitis).

Features

Acute anterior uveitis:

- Progressive (over a few hours/days) unilateral, painful red eye
- Visual acuity in the affected eye is reduced
- Photophobia
- Pupil may be abnormally shaped or of a different size to the unaffected eye (small pupil, initially from iris spasm; later it may be irregular or dilate irregularly due to adhesions between lens and iris)
- Excess tear production
- Characteristic sign is the presence of cells in the aqueous humour seen on slit-lamp
 - Aqueous humour is normally clear but in anterior uveitis it may be seen as cloudy, giving the appearance of a 'flare'. This appears rather like a shaft of light shining through a darkened, smoky room. Anterior chamber flare is due to inflamed vessels leaking protein. Due to the cloudiness, as the slit-lamp beam of light is shone through, the beam disperses hence the term flare

Chronic anterior uveitis:

- Presents as recurrent episodes, with less acute symptoms
- Patients may find that one symptom predominates (this tends to be blurred vision)

Associated conditions

- Ankylosing spondylitis
- Reactive arthritis
- Ulcerative colitis, Crohn's disease



	<p>Management:</p> <ul style="list-style-type: none">- Prednisolone eye drops to reduce inflammation- Cyclopentolate to prevent adhesions between lens and iris by keep pupil dilated
5.	<p>A 33 year old man has an acute painful, red right eye for the last 24 hours. He complains of blurring of vision. He had a similar episode a year ago. His pupil is irregular in shape and he is very sensitive to light. He has been taking diclofenac for three years now because of back pain and stiffness. What is the SINGLE most likely clinical diagnosis?</p> <p>A. Acute close-angle glaucoma B. Conjunctivitis C. Episcleritis D. Iritis E. Keratitis</p> <p>Anterior uveitis</p> <ul style="list-style-type: none">- Also referred to as iritis. It is one of the important differentials of a red eye. <p>Presentation</p> <ul style="list-style-type: none">- Symptoms may develop over hours or days (acute anterior uveitis), or onset may be gradual (chronic anterior uveitis). <p>Features</p> <p><i>Acute anterior uveitis:</i></p> <ul style="list-style-type: none">- Progressive (over a few hours/days) unilateral, painful red eye- Visual acuity in the affected eye is reduced- Photophobia- Pupil may be abnormally shaped or of a different size to the unaffected eye (small pupil, initially from iris spasm; later it may be irregular or dilate irregularly due to adhesions between lens and iris)- Excess tear production- Characteristic sign is the presence of cells in the aqueous humour seen on slit-lamp<ul style="list-style-type: none">- Aqueous humour is normally clear but in anterior uveitis it may be seen as cloudy, giving the appearance of a 'flare'. This appears rather like a shaft of light shining through a darkened, smoky room. Anterior chamber flare is due to inflamed vessels leaking protein. Due to the cloudiness, as the slit-lamp beam of light is shone through, the beam disperses hence the term flare <p><i>Chronic anterior uveitis:</i></p> <ul style="list-style-type: none">- Presents as recurrent episodes, with less acute symptoms



	<ul style="list-style-type: none">- Patients may find that one symptom predominates (this tends to be blurred vision) <p>Associated conditions</p> <ul style="list-style-type: none">- Ankylosing spondylitis- Reactive arthritis- Ulcerative colitis, Crohn's disease <p>Management:</p> <ul style="list-style-type: none">- Prednisolone eye drops to reduce inflammation- Cyclopentolate to prevent adhesions between lens and iris by keep pupil dilated
6.	<p>A 48 year man who has been taking medications for asthma for several years has now presented with decreased vision on his right eye. He complains of glare especially during the night. What SINGLE medication is most likely to cause his visual deterioration?</p> <p>A. Inhaled salbutamol B. Inhaled steroids C. Aminophylline D. Theophylline E. Oral steroids</p> <p>The diagnosis here is steroid induced cataracts. Long term use of steroids can cause cataracts. Oral corticosteroids have more of a systemic effect compared to inhaled corticosteroids. Thus, oral steroids are more likely to be the cause of his cataracts.</p> <p>There are certain keywords or hints that you may find on the PLAB test that would lean you towards cataracts. These are:</p> <ul style="list-style-type: none">- Exposure to great amounts of UV light i.e. Person from Australia who never wears sunglasses- Long term use of steroids (They may not say the words "steroids" but they may give a scenario with someone who is with a long standing condition that needs the use of steroids)- A high myopia- Trauma to eye
7.	<p>An 82 year old woman has developed a painful blistering rash on one side of her forehead and anterior scalp. She also has a red eye, decreased visual acuity and epiphora alongside the forehead tenderness. What is the SINGLE most likely nerve affected?</p> <p>A. Accessory nerve B. Facial nerve C. Olfactory nerve D. Optic nerve E. Trigeminal nerve</p>



	<p>Herpes zoster ophthalmicus</p> <p>Herpes zoster ophthalmicus (HZO) describes the reactivation of the varicella zoster virus in the area supplied by the ophthalmic division of the trigeminal nerve. It accounts for around 10-20% of case of shingles. Ophthalmic herpes is a danger to sight and the patient should see an ophthalmologist the same day.</p> <p>Features</p> <ul style="list-style-type: none">- Vesicular rash around the eye, which may or may not involve the actual eye itself- Hutchinson's sign: rash on the tip or side of the nose. Indicates nasociliary involvement and is a strong risk factor for ocular involvement <p>Management</p> <ul style="list-style-type: none">- Oral antiviral treatment- Oral corticosteroids may reduce the duration of pain- Ocular involvement requires urgent ophthalmology review <p>Complications</p> <ul style="list-style-type: none">- Ocular: conjunctivitis, keratitis, episcleritis, anterior uveitis- Ptosis- Post-herpetic neuralgia <p>Keratitis is a condition in which the eye's cornea, the front part of the eye, becomes inflamed. Another infectious cause of keratitis is Herpes simplex keratitis in which case presents with a dendritic corneal ulcer. For herpes simplex keratitis, topical acyclovir is used</p>
8.	<p>A 35 year old HIV positive man presents with progressive visual deterioration. He complains of blurred vision and floaters. On examination, multiple cotton wool spots are seen in both eyes. What is the SINGLE most likely causative organism?</p> <p>A. Herpes zoster B. Cryptosporidium C. Cytomegalovirus D. Pneumocystis jiroveci pneumonia E. Cryptococcus neoformans</p> <p>One of the rare manifestations of cytomegalovirus includes retinitis. It is usually seen in an immunocompromised host (e.g. a positive HIV patient) like in this stem. Although it is rare, retinitis is still the most common manifestation of CMV disease in patients who are HIV positive. Very early CMV may resemble cotton wool spots.</p> <p>Cytomegalovirus retinitis</p> <p>Presentation:</p> <ul style="list-style-type: none">- Decreased visual acuity, floaters, and loss of visual fields on one side



	<ul style="list-style-type: none">- Examination shows yellow-white cloudy retinal lesions. Lesions may appear at the periphery of the fundus, but they progress centrally.- It begins as a unilateral disease, but in many cases it progresses to bilateral involvement <p><i>Remembering the findings of the examination of the eye for cytomegalovirus retinitis is less important as the question writers would have to give a history of HIV for this to be cytomegalovirus retinitis. In view of that, if a patient with positive HIV attends with visual deterioration, cytomegalovirus should be at the top of your differential.</i></p>
9.	<p>A 25 year old man has a burning sensation in his left eye for the last 2 days. His eye is red and has thick purulent discharge. His lids are often stuck shut on waking. What is the SINGLE most appropriate initial management?</p> <p>A. Oral antibiotic B. Oral antihistamine C. Topical antibiotics D. Topical antibiotics and topical steroids E. Clean discharge using cotton wool soaked in water</p> <p>There has been a long debate regarding the use of topical antibiotics in bacterial conjunctivitis. NHS has been moving towards using self care rather than antibiotics for infective conjunctivitis. For most people, use of a topical ocular antibiotic makes little difference to recovery from infective conjunctivitis and up to 10% of people treated with topical ocular antibiotics complain of adverse reactions to treatment. Not to mention, that the risk of a serious complication from untreated infective conjunctivitis is low.</p> <p>Thus, one should only consider topical ocular antibiotics if the infective conjunctivitis is severe, or likely to become severe, providing serious causes of a red eye can be confidently excluded. It would seem reasonable to consider infective conjunctivitis to be severe when the person considers the symptoms to be distressing or signs are judged to be severe from clinical experience. However, it is obvious that you will not be able to tell based on the PLAB questions if it is severe conjunctivitis or mild conjunctivitis. So a good guideline that you should follow is based on time. If the patient has infective conjunctivitis for more than 7 days, then start the patient on topical antibiotics. If it is less than 7 days, then choose the option that has self-care rather than topical antibiotics.</p> <p>Topical steroids is always going to be the wrong answer unless it is herpes simplex virus conjunctivitis. It is only used if keratitis extends deep into the stroma.</p> <p>Bacterial conjunctivitis management</p> <p>Most cases of infective conjunctivitis do not need medical treatment and clear up in one to two weeks. Gently clean away sticky discharge from your eyelids and lashes using cotton wool soaked in water.</p>



If the decision is made to use antibiotics → chloramphenicol drops is the drug of choice. Chloramphenicol has a broad spectrum of activity and is the drug of choice for superficial eye infections. It is bacteriostatic, with a relatively broad spectrum of action against most Gram-positive and Gram-negative bacteria.

Types of conjunctivitis:

Bacterial conjunctivitis	Viral conjunctivitis	Allergic conjunctivitis
<ul style="list-style-type: none">- Purulent discharge- Eyes may be 'stuck together' in the morning	<ul style="list-style-type: none">- Serous discharge- Recent URTI- Preauricular lymph nodes	<ul style="list-style-type: none">- Bilateral symptoms- Itch is prominent- May give a history of atopy- May be seasonal (due to pollen) or perennial (due to dust mite, washing powder or other allergens)

- 10.** A 45 year old woman had her visual acuity checked at her local optician. Several hours later she presents to the emergency department with severe ocular pain and redness in her eye. She also complains of seeing coloured halos. What SINGLE anatomical structure is most likely to be involved?

- A. Iris
B. Ciliary body
C. Anterior chamber
D. Posterior chamber
E. Cornea

This question is testing your knowledge of acute angle closure glaucoma. It is important to remember the symptoms of acute angle closure glaucoma worsen when the pupils are dilated (e.g. in a dark room).

The history of having her eyes checked but the optician gives us the idea that either:

1. A mildly illuminated room like of an opticians room would dilate the pupils enough to worsen symptoms
2. Topical mydriatics was applied in which case led to pupillary dilation which can push the iris into the angle and precipitate AAC in anyone with narrow angles.

Angle closure glaucoma (ACG) is associated with a physically obstructed anterior chamber angle.

Acute angle closure glaucoma

Also called acute glaucoma or narrow-angle glaucoma



In acute angle closure glaucoma (AACG) there is a rise in IOP secondary to an impairment of aqueous outflow. Factors predisposing to AACG include:

- hypermetropia (long-sightedness)
- pupillary dilatation

It presents with an eye that is red, severely painful, and associated with a semi-dilated non-reacting pupil. Headaches and decreased visual acuity are common. Symptoms worsen with mydriasis (e.g. watching TV in a dark room). Coloured haloes around lights may be seen by patients. Palpation of the globe will reveal it to be hard. Corneal oedema results in dull or hazy cornea. Systemic upset may be seen, such as nausea and vomiting and even abdominal pain.

Note: The acute attack is usually unilateral; however, long-term management will be to both eyes.

Medical

Initial medical treatment typically involves all topical glaucoma medications that are not contra-indicated in the patient, together with intravenous acetazolamide.

Topical agents include:

- Beta-blockers - eg, timolol, cautioned in asthma.
- Steroids - prednisolone 15 every 15 minutes for an hour, then hourly
- Pilocarpine 1-2%
- Acetazolamide is given intravenously (500 mg over 10 minutes) and a further 250 mg slow-release tablet after one hour
- Offer systemic analgesia \pm antiemetics.

This should tide the patient over until they are able to be seen by a duty ophthalmologist who will assess the situation at short intervals until the acute attack is broken. These treatments may be repeated depending on the IOP response and a combination of these medications will be given to the patient on discharge. The patient will remain under close observation (eg, daily clinic reviews or as an inpatient). Subsequent treatment is aimed at specific mechanism of closure.

Surgical

Peripheral iridotomy (PI)

- This refers to (usually two) holes made in each iris with a laser. This is to provide a free-flow transit passage for the aqueous. Both eyes are treated, as the fellow eye will be predisposed to an AAC attack too. This procedure can usually be carried out within a week of the acute attack, once corneal oedema has cleared enough to allow a good view of the iris.

Surgical iridectomy

- This is carried out where PI is not possible. It is a less favoured option, as it is more invasive and therefore more prone to complications.



- 11.** A 33 year old man presents to clinic with a history of early morning back pain, stiffness and a painful red right eye. The pain in the eye started last night. On examination, his right pupil is seen to have a distorted pupil shape. His visual acuity is unaffected. What is the SINGLE most likely affected anatomical structure?

- A. Optic nerve
- B. Iris**
- C. Cornea
- D. Conjunctiva
- E. Sclera

A middle age man with early morning back pain and stiffness is suggestive of seronegative arthritis likely ankylosing spondylitis where anterior uveitis (iritis) is a known association.

It is also important to note that visual acuity for iritis is initially normal but can worsen as time passes.

The abnormally shaped pupil is another give away.

Anterior uveitis

- Also referred to as iritis. It is one of the important differentials of a red eye.

Presentation

- Symptoms may develop over hours or days (acute anterior uveitis), or onset may be gradual (chronic anterior uveitis).

Features

Acute anterior uveitis:

- Progressive (over a few hours/days) unilateral, painful red eye
- Visual acuity in the affected eye is reduced
- Photophobia
- Pupil may be abnormally shaped or of a different size to the unaffected eye (small pupil, initially from iris spasm; later it may be irregular or dilate irregularly due to adhesions between lens and iris)
- Excess tear production
- Characteristic sign is the presence of cells in the aqueous humour seen on slit-lamp
 - Aqueous humour is normally clear but in anterior uveitis it may be seen as cloudy, giving the appearance of a 'flare'. This appears rather like a shaft of light shining through a darkened, smoky room. Anterior chamber flare is due to inflamed vessels leaking protein. Due to the cloudiness, as the slit-lamp beam of light is shone through, the beam disperses hence the term flare



	<p><i>Chronic anterior uveitis:</i></p> <ul style="list-style-type: none">- Presents as recurrent episodes, with less acute symptoms- Patients may find that one symptom predominates (this tends to be blurred vision) <p>Associated conditions</p> <ul style="list-style-type: none">- Ankylosing spondylitis- Reactive arthritis- Ulcerative colitis, Crohn's disease <p>Management:</p> <ul style="list-style-type: none">- Prednisolone eye drops to reduce inflammation- Cyclopentolate to prevent adhesions between lens and iris by keep pupil dilated
12.	<p>A 30 year old woman has a sudden acute headache with nausea and vomiting. She has a red, painful left eye. The symptoms started when she was watching television in a dark room. Palpation of the globe reveals it to be hard. What is the SINGLE most likely visual symptom?</p> <p>A. Paracentral scotoma B. Peripheral visual field loss C. Coloured halos D. Floaters E. Glares</p> <p>In acute angle closure glaucoma, coloured haloes around lights are often a complaint by patients. Nausea and vomiting are common and may be the main presenting feature in some patients.</p> <p>Acute angle closure glaucoma</p> <p>Also called acute glaucoma or narrow-angle glaucoma</p> <p>In acute angle closure glaucoma (AACG) there is a rise in IOP secondary to an impairment of aqueous outflow. Factors predisposing to AACG include:</p> <ul style="list-style-type: none">- hypermetropia (long-sightedness)- pupillary dilatation <p>It presents with an eye that is red, severely painful, and associated with a semi-dilated non-reacting pupil. Headaches and decreased visual acuity are common. Symptoms worsen with mydriasis (e.g. watching TV in a dark room). Coloured haloes around lights may be seen by patients. Palpation of the globe will reveal it to be hard. Corneal oedema results in dull or hazy cornea. Systemic upset may be seen, such as nausea and vomiting and even abdominal pain.</p> <p>Note: The acute attack is usually unilateral; however, long-term management will be to both eyes.</p>



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Surgical

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Surgical iridectomy

- This is carried out where PI is not possible. It is a less favoured option, as it is more invasive and therefore more prone to complications.

13. A 48 year old man attends clinic for a routine eye check up as he has a history of type 1 diabetes. Fundoscopy shows neovascularization at the retina. What is the SINGLE most appropriate management?

- A. Strict blood glucose control
- B. Review in 12 months
- C. Non urgent referral to specialist
- D. Insulin
- E. Laser photocoagulation**

The diagnosis here is proliferative retinopathy. Remember how to distinguish the types of diabetic retinopathy. Also remember that type I diabetes mellitus is a common cause of retinopathy. Laser photocoagulation is needed for proliferative retinopathy.



	<p>Background retinopathy (nonproliferative)</p> <ul style="list-style-type: none">- Microaneurysms (dots)- Haemorrhage (blots)- Hard exudates <p>Preproliferative retinopathy</p> <ul style="list-style-type: none">- Addition of Cotton wool spots <p>Proliferative retinopathy</p> <ul style="list-style-type: none">- Addition of new vessel formation (neovascularization)- More serious. Progresses rapidly to blindness. Neovascularization. May lead to vitreous haemorrhage- Floaters in vision- Laser photocoagulation is needed
14.	<p>A 68 year old patient attends for retinal screening. He is found to have hard exudates, macular oedema and arteriovenous nipping. He is on long term treatment with nifedipine. What is the SINGLE most likely diagnosis?</p> <p>A. Macular degeneration B. Hypertension retinopathy C. Non-proliferative diabetic retinopathy D. Proliferative diabetic retinopathy E. Open angle glaucoma</p> <p>Hypertensive retinopathy</p> <p>Most patients with hypertensive retinopathy have no symptoms.</p> <p>Chronic hypertension (blood pressure > 140/90 mmHg):</p> <ul style="list-style-type: none">- Usually asymptomatic- Fundoscopy reveals bilateral attenuation of arterial vessels ('copper or silver wiring'), arteriovenous nipping (where the arteries cross the veins) and, eventually, haemorrhage and exudates <p>Malignant (accelerated) hypertension (clinic blood pressure >180/110 mmHg):</p> <ul style="list-style-type: none">- May have headaches and decreased vision- On fundoscopy, hard exudates appear as a 'macular star' (thin white streaks radiating around the macula), disc swelling, cotton wool spots, flame haemorrhages and arterial or venous occlusions. <p><i>Key phrases in the exam that help you pick Hypertensive retinopathy as the answer:</i></p> <ul style="list-style-type: none">- <i>Copper or silver wiring</i>



	<ul style="list-style-type: none">- <i>Arteriovenous nipping</i>- <i>Flamed shaped haemorrhage - also found in diabetic retinopathy</i> <p>Usually one of these 3 terms would appear in the stem</p> <p>Management</p> <ul style="list-style-type: none">- Aimed at controlling the hypertension
15.	<p>A 67 year old man has deteriorating vision in his left eye. His complaints that his vision has been slowly getting more blurry over the last few months. Glare from the headlights of cars is particularly a problem when driving at night. He has a history of longstanding COPD and is on multiple drugs for it. What SINGLE medication is most likely to cause his visual deterioration?</p> <p>A. Salmeterol B. Oral corticosteroid C. Tiotropium D. Theophylline E. Inhaled corticosteroid</p> <p>The diagnosis here is steroid induced cataracts. Long term use of steroids can cause cataracts. Oral corticosteroids have more of a systemic effect compared to inhaled corticosteroids. Thus, oral steroids are more likely to be the cause of his cataracts.</p> <p>There are certain keywords or hints that you may find on the PLAB test that would lean you towards cataracts. These are:</p> <p>Exposure to great amounts of UV light i.e. Person from Australia who never wears sunglasses</p> <ul style="list-style-type: none">- Long term use of steroids (They may not say the words “steroids” but they may give a scenario with someone who is with a long standing condition that needs the use of steroids)- A high myopia- Trauma to eye
16.	<p>A 34 year old homosexual man attends clinic with a history of weight loss and progressive visual deterioration. A fundoscopic examination reveals retinal haemorrhages and yellow-white areas with perivascular exudates. What is the SINGLE most appropriate causative organism?</p> <p>A. Mycobacterium avium B. Herpes simplex virus C. Haemophilus influenzae D. Cytomegalovirus E. Pneumocystis jiroveci</p> <p>The hint here is the homosexual man. For a very inappropriate reason, question writers tend to use the phrase homosexual to hint to you for the possibility of AIDS like in this case. The combination of weight loss is another clue towards the diagnosis of HIV.</p>



	<p>One of the rare manifestations of cytomegalovirus includes retinitis. It is usually seen in an immunocompromised host (e.g. a positive HIV patient) like in this stem. Although it is rare, retinitis is still the most common manifestation of CMV disease in patients who are HIV positive.</p> <p>Retinal haemorrhage is a recognized association with cytomegalovirus retinitis</p> <p>Cytomegalovirus retinitis</p> <p>Presentation:</p> <ul style="list-style-type: none">- Decreased visual acuity, floaters, and loss of visual fields on one side- Examination shows yellow-white cloudy retinal lesions. Lesions may appear at the periphery of the fundus, but they progress centrally.- It begins as a unilateral disease, but in many cases it progresses to bilateral involvement <p><i>Remembering the findings of the examination of the eye for cytomegalovirus retinitis is less important as the question writers would have to give a history of HIV for this to be cytomegalovirus retinitis. In view of that, if a patient with positive HIV attends with visual deterioration, cytomegalovirus should be at the top of your differential.</i></p>
17.	<p>A 44 year old man has sudden severe eye pain, red eye, visual blurring. It started when he went to watch a movie in the theatre. It was accompanied by nausea and vomiting. Slit-lamp findings include shallow anterior chambers in both eyes with corneal epithelial oedema. What is the SINGLE most likely diagnosis?</p> <p>A. Central retinal vein occlusion B. Acute closed angle glaucoma C. Uveitis D. Iritis E. Open angle glaucoma</p> <p>The slit-lamp findings are consistent with acute closed angle glaucoma. This is supported by the history of entering a dark room (movie theatre) when symptoms started along with the severe painful red eye.</p> <p>Acute angle closure glaucoma</p> <p>Also called acute glaucoma or narrow-angle glaucoma</p> <p>In acute angle closure glaucoma (AACG) there is a rise in IOP secondary to an impairment of aqueous outflow. Factors predisposing to AACG include:</p> <ul style="list-style-type: none">- hypermetropia (long-sightedness)- pupillary dilatation <p>It presents with an eye that is red, severely painful, and associated with a semi-dilated non-reacting pupil. Headaches and decreased visual acuity are common. Symptoms worsen with</p>



mydriasis (e.g. watching TV in a dark room). Coloured haloes around lights may be seen by patients. Palpation of the globe will reveal it to be hard. Corneal oedema results in dull or hazy cornea. Systemic upset may be seen, such as nausea and vomiting and even abdominal pain.

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Surgical iridectomy

- This is carried out where PI is not possible. It is a less favoured option, as it is more invasive and therefore more prone to complications.



18.	<p>A 44 year old hypertensive male, loses vision in his left eye overnight. There is no pain or redness associated with his visual loss. On fundoscopy, venous dilation, tortuosity, and retinal haemorrhages are observed on his left eye. No abnormalities are found on his right eye on fundoscopy. What is the SINGLE most likely cause of his unilateral visual loss?</p> <p>A. Hypertension retinopathy B. Central Retinal Artery Occlusion C. Central Retinal Vein Occlusion D. Background retinopathy E. Retinal detachment</p> <p>Central Retinal Vein Occlusion (CRVO)</p> <p>Clinical Presentation These patients have a clinical presentation similar to those with retinal artery occlusion. There is the sudden loss of vision without pain, redness, or abnormality in pupillary dilation.</p> <p>Ocular examination by funduscopy reveals disk swelling, venous dilation, tortuosity, and retinal haemorrhages.</p> <p>Diagnosis Retinal haemorrhages are the main way of distinguishing venous obstruction from arterial obstruction. You cannot have a hemorrhage in the retina if you don't have blood getting into the eye.</p>
19.	<p>A 49 year old man has sudden complete loss of vision from his left eye over a couple of seconds. There was no pain associated with it and there is no redness of the eye. Ophthalmoscopy reveals a pale retina with a cherry red spot at the macula and attenuation of the vessels. What is the SINGLE most likely diagnosis?</p> <p>A. Central retinal artery occlusion B. Central retinal vein occlusion C. Branch retinal artery occlusion D. Branch retinal vein occlusion E. Open angle glaucoma</p> <p>Central retinal artery occlusion Central retinal artery occlusion occurs when the central retinal artery occludes before it branches out as it emerges from the optic nerve, resulting in almost complete hypoxia of the inner retina.</p> <p>Presentation</p> <ul style="list-style-type: none">- Sudden (over a few seconds)- Unilateral painless visual loss



	<ul style="list-style-type: none">- In 94% of cases, vision is usually reduced to counting fingers (worse suggests that the ophthalmic artery may also be affected)- There may be a history of amaurosis fugax (amaurosis fugax precedes loss of vision in up to 10% of patients)- There is no redness of the eye <p>Examination:</p> <ul style="list-style-type: none">- An afferent pupil defect appears within seconds and may precede retinal changes by 1 hour. Ophthalmoscopy reveals:<ul style="list-style-type: none">o A retina that appears white or paleo Cherry red spot at the maculao Attenuation of the vessels <p><i>What is an afferent pupillary defect?</i> <i>Afferent defects (absent direct response) is when the pupil won't respond to light, but constricts to a beam in the other eye (consensual response). Constriction to accommodation still occurs.</i></p> <p>Investigations</p> <ul style="list-style-type: none">- In the acute setting, diagnosis is usually clinical and investigations are aimed at ruling out underlying diseases. The most important cause to rule out is giant cell arteritis because, with appropriate and timely intervention, the visual loss is reversible and the fellow eye will be protected. <p>Management</p> <ul style="list-style-type: none">- If the patient presents within 90-100 minutes of onset of symptoms, you could try firm ocular massage. The idea behind this is to try to dislodge the obstruction. However, this only works very occasionally and immediate referral is mandatory.
20.	<p>A 52 year old man presents with sudden complete loss of vision from the right eye. He also had been complaining of right sided headaches which would come up more on chewing. On fundoscopy, the retina was pale and a cherry red spot could be seen in the macular region. What is the SINGLE most likely cause of vision loss?</p> <p>A. Central retinal artery occlusion B. Central retinal vein occlusion C. Branch retinal artery occlusion D. Branch retinal vein occlusion E. Open angle glaucoma</p> <p>The most important diagnosis here to exclude would be giant cell arteritis. An old man with symptoms of headache and pain on chewing are classic features.</p> <p>Central retinal artery can be affected by giant cell arteritis. Approximately 10% of patients with ocular involvement in giant cell arteritis experience a central retinal artery occlusion.</p>



The sudden loss of vision in one eye and the pale retina with cherry red spots seen in the macula are diagnostic for central retinal artery occlusion.

Central retinal artery occlusion

Central retinal artery occlusion occurs when the central retinal artery occludes before it branches out as it emerges from the optic nerve, resulting in almost complete hypoxia of the inner retina.

Presentation

- Sudden (over a few seconds)
- Unilateral painless visual loss
- In 94% of cases, vision is usually reduced to counting fingers (worse suggests that the ophthalmic artery may also be affected)
- There may be a history of amaurosis fugax (amaurosis fugax precedes loss of vision in up to 10% of patients)
- There is no redness of the eye

Examination:

- An afferent pupil defect appears within seconds and may precede retinal changes by 1 hour. Ophthalmoscopy reveals:
 - o A retina that appears white or pale
 - o Cherry red spot at the macula
 - o Attenuation of the vessels

What is an afferent pupillary defect?

Afferent defects (absent direct response) is when the pupil won't respond to light, but constricts to a beam in the other eye (consensual response). Constriction to accommodation still occurs.

Investigations

- In the acute setting, diagnosis is usually clinical and investigations are aimed at ruling out underlying diseases. The most important cause to rule out is giant cell arteritis because, with appropriate and timely intervention, the visual loss is reversible and the fellow eye will be protected.

Management

- If the patient presents within 90-100 minutes of onset of symptoms, you could try firm ocular massage. The idea behind this is to try to dislodge the obstruction. However, this only works very occasionally and immediate referral is mandatory.



- 21.** A 63 year old woman has progressive decrease in her visual acuity and peripheral visual field loss. She is shortsighted and needs to wear glasses. On examination, she has normal pupils on both eyes. What is the SINGLE most likely diagnosis?
- A. Cataract
B. Glaucoma
C. Retinal detachment
D. Iritis
E. Giant cell arteritis
- The symptoms and progressive decrease in vision and myopia point towards open-angle glaucoma.
- Simple (primary) open-angle glaucoma** is present in around 2% of people older than 40 years. Other than age, risk factors that need to be known for PLAB include:
- family history
 - black patients
 - myopia
- Note: The incidence increases with age, most commonly presenting after the age of 65 (and rarely before the age of 40).
- Unfortunately, in the vast majority of cases, patients are asymptomatic. Because initial visual loss is to peripheral vision and the field of vision is covered by the other eye, patients do not notice visual loss until severe and permanent damage has occurred, often impacting on central (foveal) vision. By then, up to 90% of the optic nerve fibres may have been irreversibly damaged
- Open-angle glaucoma may be detected on checking the IOPs and visual fields of those with affected relatives. Suspicion may arise during the course of a routine eye check by an optician or GP, where abnormal discs, IOPs or visual fields may be noted.
- Features may include**
- peripheral visual field loss - nasal scotomas progressing to 'tunnel vision'
 - decreased visual acuity
 - optic disc cupping



22. A 27 year old female was brought to the emergency department by her friend from a movie theatre. She complains of sudden severe pain in the eye followed by vomiting. She sees coloured halos, has blurry vision and a red eye. She gives a past history of recurrent headaches which used to resolve spontaneously. Examination shows fixed, dilated ovoid pupils. What is the SINGLE most initial investigation?

- A. CT head
- B. MRI orbits
- C. Blood culture and sensitivity
- D. Toxicology screen
- E. Ocular tonometry**

The history is consistent with acute angle closure glaucoma. Headaches and blurry vision are common. Symptoms tend to worsen with pupil dilation as seen in this stem when she is watching a movie in a dark theatre. Vomiting is also a common feature of acute glaucoma.

Ocular tonometry is needed to determine the intraocular pressure to help diagnose glaucoma.

Acute angle closure glaucoma

Also called acute glaucoma or narrow-angle glaucoma

In acute angle closure glaucoma (AACG) there is a rise in IOP secondary to an impairment of aqueous outflow. Factors predisposing to AACG include:

- hypermetropia (long-sightedness)
- pupillary dilatation

It presents with an eye that is red, severely painful, and associated with a semi-dilated non-reacting pupil. Headaches and decreased visual acuity are common. Symptoms worsen with mydriasis (e.g. watching TV in a dark room). Coloured haloes around lights may be seen by patients. Palpation of the globe will reveal it to be hard. Corneal oedema results in dull or hazy cornea. Systemic upset may be seen, such as nausea and vomiting and even abdominal pain.

Note: The acute attack is usually unilateral; however, long-term management will be to both eyes.

Medical

Initial medical treatment typically involves all topical glaucoma medications that are not contra-indicated in the patient, together with intravenous acetazolamide.

Topical agents include:

- Beta-blockers - eg, timolol, cautioned in asthma.
- Steroids - prednisolone 15 every 15 minutes for an hour, then hourly
- Pilocarpine 1-2%
- Acetazolamide is given intravenously (500 mg over 10 minutes) and a further 250 mg slow-release tablet after one hour



	<ul style="list-style-type: none">- Offer systemic analgesia \pm antiemetics. <p>This should tide the patient over until they are able to be seen by a duty ophthalmologist who will assess the situation at short intervals until the acute attack is broken. These treatments may be repeated depending on the IOP response and a combination of these medications will be given to the patient on discharge. The patient will remain under close observation (eg, daily clinic reviews or as an inpatient). Subsequent treatment is aimed at specific mechanism of closure.</p> <p>Surgical</p> <p><i>Peripheral iridotomy (PI)</i></p> <ul style="list-style-type: none">- This refers to (usually two) holes made in each iris with a laser. This is to provide a free-flow transit passage for the aqueous. Both eyes are treated, as the fellow eye will be predisposed to an AAC attack too. This procedure can usually be carried out within a week of the acute attack, once corneal oedema has cleared enough to allow a good view of the iris. <p><i>Surgical iridectomy</i></p> <ul style="list-style-type: none">- This is carried out where PI is not possible. It is a less favoured option, as it is more invasive and therefore more prone to complications.
23.	<p>A 52 year old man has a painful, red, photophobic right eye with slightly blurred vision and watering for 2 days. He has no similar episodes in the past. On slit lamp examination, there are cells and flare in the anterior chamber. The pupil is also sluggish to react. What is the SINGLE most appropriate clinical diagnosis?</p> <p>A. Acute close-angle glaucoma B. Acute conjunctivitis C. Acute dacryocystitis D. Acute iritis E. Corneal foreign body</p> <p>Anterior uveitis</p> <ul style="list-style-type: none">- Also referred to as iritis. It is one of the important differentials of a red eye. <p>Presentation</p> <ul style="list-style-type: none">- Symptoms may develop over hours or days (acute anterior uveitis), or onset may be gradual (chronic anterior uveitis). <p>Features</p> <p><i>Acute anterior uveitis:</i></p> <ul style="list-style-type: none">- Progressive (over a few hours/days) unilateral, painful red eye



	<ul style="list-style-type: none">- Visual acuity in the affected eye is reduced- Photophobia- Pupil may be abnormally shaped or of a different size to the unaffected eye (small pupil, initially from iris spasm; later it may be irregular or dilate irregularly due to adhesions between lens and iris)- Excess tear production- Characteristic sign is the presence of cells in the aqueous humour seen on slit-lamp<ul style="list-style-type: none">- Aqueous humour is normally clear but in anterior uveitis it may be seen as cloudy, giving the appearance of a 'flare'. This appears rather like a shaft of light shining through a darkened, smoky room. Anterior chamber flare is due to inflamed vessels leaking protein. Due to the cloudiness, as the slit-lamp beam of light is shone through, the beam disperses hence the term flare <p><i>Chronic anterior uveitis:</i></p> <ul style="list-style-type: none">- Presents as recurrent episodes, with less acute symptoms- Patients may find that one symptom predominates (this tends to be blurred vision) <p>Associated conditions</p> <ul style="list-style-type: none">- Ankylosing spondylitis- Reactive arthritis- Ulcerative colitis, Crohn's disease <p>Management:</p> <ul style="list-style-type: none">- Prednisolone eye drops to reduce inflammation- Cyclopentolate to prevent adhesions between lens and iris by keep pupil dilated
24.	<p>A 33 year old woman started seeing tiny black dots followed by a painless sudden loss of vision in her left eye a few hours ago. She says that it initially felt like a curtain was falling down. On fundoscopy, the optic disc is normal. What is the SINGLE most likely underlying pathology?</p> <p>A. Iritis B. Glaucoma C. Vitreous chamber D. Retinal detachment E. Central retinal artery occlusion</p> <p>Causes of sudden painless loss of vision:</p> <ul style="list-style-type: none">- Retinal detachment- Vitreous haemorrhage- Retinal vein occlusion- Retinal artery occlusion- Optic neuritis- Cerebrovascular accident



Among all the causes of painless loss of vision, retinal detachment fits as they give clues like the tiny black dots which are “floaters” and the typical description of a “curtain falling down”.

If you cannot see an retinal detachment on ophthalmoscopy but suspect it, refer the patient on for a slit-lamp examination (direct ophthalmoscopy offers only a narrow field of view).

Retinal detachment

Pathogenesis

Retinal detachment is usually spontaneous, but it may result from trauma.

The two most common predisposing factors are extreme myopia and surgical extraction of cataracts.

Traction on the retina can also occur from proliferative retinopathy from diabetes, retinal vein occlusion, and age-related macular degeneration.

Clinical Presentation

The classic symptom is photopsia (flashing lights). A common presentation is blurry vision developing in one eye without pain or redness. The patient may complain of seeing "floaters;" as well as flashes at the periphery of vision. Sometimes it is described as a "curtain coming down," as the retina falls off the sclera behind it.

Remember this:

Detachment presents with 4 'F's : floaters, flashes, field loss, and fall in acuity

Diagnosis

Ophthalmoscopy: grey opalescent retina, ballooning forward.

Treatment

Various methods of trying to reattach the retina are employed. Patients should lean their heads back to promote the chance that the retina will fall back into place. The retina can be mechanically reattached to the sclera surgically, by laser photocoagulation, cryotherapy, or by the injection of expansile gas into the vitreal cavity. The gas will press the retina back into place. A "buckle," or belt, can be placed around the sclera to push the sclera forward so that it can come into contact with the retina.



25.	<p>A 70 year old man who has a medical history of diabetes mellitus and hypertension experiences acute monocular blindness which resolves after 30 minutes. He describes this as a curtain coming down vertically into the field of vision of one eye. What is the SINGLE most likely diagnosis?</p> <p>A. Giant cell arteritis B. Optic neuritis C. Lacunar infarct D. Pontine haemorrhage E. Amaurosis fugax</p> <p>Amaurosis Fugax</p> <ul style="list-style-type: none">- Painless transient monocular visual loss (i.e. loss of vision in one eye that is not permanent)- It is indicative of retinal ischaemia, usually associated with emboli or stenosis of the ipsilateral carotid artery <p>Presentation:</p> <ul style="list-style-type: none">- Sudden, unilateral vision loss; “black curtain coming down”- Duration: 5-15 minutes; resolves within < 24 hours- Associated with stroke or transient ischaemic attack (TIA) and its risk factors (i.e. hypertension, atherosclerosis)- Has an association with giant cell arteritis
26.	<p>A 45 year old man with type 1 diabetes mellitus has his annual check ups. Ophthalmoscopy shows dot and blot haemorrhage with hard exudates. What is the SINGLE most likely diagnosis?</p> <p>A. Macular degeneration B. Retinal detachment C. Multiple sclerosis D. Diabetic background retinopathy E. Diabetic proliferative retinopathy</p> <p>The diagnosis here is background retinopathy. Remember how to distinguish the types of diabetic retinopathy. Also remember that type I diabetes mellitus is a common cause of retinopathy.</p> <p>Background retinopathy (nonproliferative)</p> <ul style="list-style-type: none">- Microaneurysms (dots)- Haemorrhage (blots)- Hard exudates



	<p>Preproliferative retinopathy</p> <ul style="list-style-type: none">- Addition of Cotton wool spots <p>Proliferative retinopathy</p> <ul style="list-style-type: none">- Addition of new vessel formation (neovascularization)- More serious. Progresses rapidly to blindness. Neovascularization. May lead to vitreous haemorrhage- Floaters in vision- Laser photocoagulation is needed
27.	<p>A 54 year old myopic develops flashes of light and then sudden painless loss of vision. He says that it initially felt like a curtain was falling down. Ophthalmoscope shows a grey opalescent retina, ballooning forward. What is the SINGLE most appropriate treatment?</p> <p>A. Pilocarpine B. Peripheral iridectomy C. Scleral buckling D. IV acetazolamide E. Surgical extraction of lens</p> <p>Diagnosis here is retinal detachment. Treatment options include scleral buckling. Among all the causes of painless loss of vision, retinal detachment fits as they give clues like the description of a "curtain falling down". Myopia is also another hint as it is a predisposing factor.</p> <p>Retinal detachment Pathogenesis</p> <p>Retinal detachment is usually spontaneous, but it may result from trauma.</p> <p>The two most common predisposing factors are extreme myopia and surgical extraction of cataracts.</p> <p>Traction on the retina can also occur from proliferative retinopathy from diabetes, retinal vein occlusion, and age-related macular degeneration.</p> <p>Clinical Presentation</p> <p>The classic symptom is photopsia (flashing lights). A common presentation is blurry vision developing in one eye without pain or redness. The patient may complain of seeing "floaters;" as well as flashes at the periphery of vision. Sometimes it is described as a "curtain coming down," as the retina falls off the sclera behind it.</p> <p><i>Remember this:</i> <i>Detachment presents with 4 'F's : floaters, flashes, field loss, and fall in acuity</i></p>



	<p>Diagnosis</p> <p>Ophthalmoscopy: grey opalescent retina, ballooning forward.</p> <p>Treatment</p> <p>Various methods of trying to reattach the retina are employed. Patients should lean their heads back to promote the chance that the retina will fall back into place. The retina can be mechanically reattached to the sclera surgically, by laser photocoagulation, cryotherapy, or by the injection of expansile gas into the vitreal cavity. The gas will press the retina back into place. A "buckle," or belt, can be placed around the sclera to push the sclera forward so that it can come into contact with the retina.</p>
28.	<p>A 48 year old woman presents with severe left-sided headaches, ocular pain and a red, watering eye. She has intermittent blurring of vision and sees coloured haloes. What is the SINGLE most appropriate next step of action?</p> <p>A. Measure intraocular pressure B. Relieve pain with aspirin C. Administer 100% oxygen D. Computed tomography E. Relieve pain with sumatriptan</p> <p>The case here is one of acute angle closure glaucoma. Measurement of intraocular pressure would help establish the diagnosis.</p> <p>Acute angle closure glaucoma</p> <p>Also called acute glaucoma or narrow-angle glaucoma</p> <p>In acute angle closure glaucoma (AACG) there is a rise in IOP secondary to an impairment of aqueous outflow. Factors predisposing to AACG include:</p> <ul style="list-style-type: none">- hypermetropia (long-sightedness)- pupillary dilatation <p>It presents with an eye that is red, severely painful, and associated with a semi-dilated non-reacting pupil. Headaches and decreased visual acuity are common. Symptoms worsen with mydriasis (e.g. watching TV in a dark room). Coloured haloes around lights may be seen by patients. Palpation of the globe will reveal it to be hard. Corneal oedema results in dull or hazy cornea. Systemic upset may be seen, such as nausea and vomiting and even abdominal pain.</p> <p>Note: The acute attack is usually unilateral; however, long-term management will be to both eyes.</p> <p>Medical</p> <p>Initial medical treatment typically involves all topical glaucoma medications that are not contra-indicated in the patient, together with intravenous acetazolamide.</p>



	<p><i>Topical agents include:</i></p> <ul style="list-style-type: none">- Beta-blockers - eg, timolol, cautioned in asthma.- Steroids - prednisolone 15 every 15 minutes for an hour, then hourly- Pilocarpine 1-2%- Acetazolamide is given intravenously (500 mg over 10 minutes) and a further 250 mg slow-release tablet after one hour- Offer systemic analgesia \pm antiemetics. <p>This should tide the patient over until they are able to be seen by a duty ophthalmologist who will assess the situation at short intervals until the acute attack is broken. These treatments may be repeated depending on the IOP response and a combination of these medications will be given to the patient on discharge. The patient will remain under close observation (eg, daily clinic reviews or as an inpatient). Subsequent treatment is aimed at specific mechanism of closure.</p> <p>Surgical</p> <p><i>Peripheral iridotomy (PI)</i></p> <ul style="list-style-type: none">- This refers to (usually two) holes made in each iris with a laser. This is to provide a free-flow transit passage for the aqueous. Both eyes are treated, as the fellow eye will be predisposed to an AAC attack too. This procedure can usually be carried out within a week of the acute attack, once corneal oedema has cleared enough to allow a good view of the iris. <p><i>Surgical iridectomy</i></p> <ul style="list-style-type: none">- This is carried out where PI is not possible. It is a less favoured option, as it is more invasive and therefore more prone to complications.
29.	<p>A 32 year old woman has progressive decrease in vision over the past 3 years on both eyes. She is myopic and wears glasses. She is now almost blind. What is the SINGLE most likely diagnosis?</p> <p>A. Cataract B. Glaucoma C. Retinopathy D. Uveitis E. Keratitis</p> <p>The symptoms and progressive decrease in vision and myopia point towards open-angle glaucoma. Although the age does not correlate with open-angle glaucoma as it is very rare before the age of 40, the other options given are much less likely.</p> <p>Simple (primary) open-angle glaucoma is present in around 2% of people older than 40 years. Other than age, risk factors that need to be known for PLAB include:</p> <ul style="list-style-type: none">- family history- black patients



	<ul style="list-style-type: none">- myopia <p>Note: The incidence increases with age, most commonly presenting after the age of 65 (and rarely before the age of 40).</p> <p>Unfortunately, in the vast majority of cases, patients are asymptomatic. Because initial visual loss is to peripheral vision and the field of vision is covered by the other eye, patients do not notice visual loss until severe and permanent damage has occurred, often impacting on central (foveal) vision. By then, up to 90% of the optic nerve fibres may have been irreversibly damaged</p> <p>Open-angle glaucoma may be detected on checking the IOPs and visual fields of those with affected relatives. Suspicion may arise during the course of a routine eye check by an optician or GP, where abnormal discs, IOPs or visual fields may be noted.</p> <p>Features may include</p> <ul style="list-style-type: none">- peripheral visual field loss - nasal scotomas progressing to 'tunnel vision'- decreased visual acuity- optic disc cupping
30.	<p>A 49 year old hypertensive man has sudden complete loss of vision from his left eye. There was no pain associated with it and there is no redness of the eye. Ophthalmoscopy reveals a pale retina with a cherry red spot at the macula and attenuation of the vessels. What is the SINGLE most appropriate management?</p> <p>A. Firm ocular massage B. Corticosteroids C. Scleral buckling D. Panretinal photocoagulation E. Surgical extraction of lens</p> <p>The likely diagnosis here is central retinal artery occlusion. An ocular massage can dislodge the embolus to a point further down the arterial circulation and improve retinal perfusion.</p> <p>Central retinal artery occlusion Central retinal artery occlusion occurs when the central retinal artery occludes before it branches out as it emerges from the optic nerve, resulting in almost complete hypoxia of the inner retina.</p> <p>Presentation</p> <ul style="list-style-type: none">- Sudden (over a few seconds)- Unilateral painless visual loss- In 94% of cases, vision is usually reduced to counting fingers (worse suggests that the ophthalmic artery may also be affected)- There may be a history of amaurosis fugax (amaurosis fugax precedes loss of vision in up to 10% of patients)- There is no redness of the eye



	<p>Examination:</p> <ul style="list-style-type: none">- An afferent pupil defect appears within seconds and may precede retinal changes by 1 hour. Ophthalmoscopy reveals:<ul style="list-style-type: none">o A retina that appears white or paleo Cherry red spot at the maculao Attenuation of the vessels <p><i>What is an afferent pupillary defect?</i> <i>Afferent defects (absent direct response) is when the pupil won't respond to light, but constricts to a beam in the other eye (consensual response). Constriction to accommodation still occurs.</i></p> <p>Investigations</p> <ul style="list-style-type: none">- In the acute setting, diagnosis is usually clinical and investigations are aimed at ruling out underlying diseases. The most important cause to rule out is giant cell arteritis because, with appropriate and timely intervention, the visual loss is reversible and the fellow eye will be protected. <p>Management</p> <ul style="list-style-type: none">- If the patient presents within 90-100 minutes of onset of symptoms, you could try firm ocular massage. The idea behind this is to try to dislodge the obstruction. However, this only works very occasionally and immediate referral is mandatory.
<p>31.</p>	<p>A 62 year old man complains of headaches and decreased vision. He has a blood pressure of 170/95 mmHg. Fundoscopy reveals disc swelling and a flame shaped haemorrhage. What is the SINGLE most likely diagnosis?</p> <p>Plab Lab Values</p> <p>A. Macular degeneration B. Hypertension retinopathy C. Non-proliferative diabetic retinopathy D. Proliferative diabetic retinopathy E. Open angle glaucoma</p> <p>Hypertensive retinopathy</p> <p>Most patients with hypertensive retinopathy have no symptoms.</p> <p>Chronic hypertension (blood pressure > 140/90 mmHg):</p> <ul style="list-style-type: none">- Usually asymptomatic- Fundoscopy reveals bilateral attenuation of arterial vessels ('copper or silver wiring'), arteriovenous nicking (where the arteries cross the veins) and, eventually, haemorrhage and exudates <p>Malignant (accelerated) hypertension (clinic blood pressure >180/110 mmHg):</p> <ul style="list-style-type: none">- May have headaches and decreased vision



	<ul style="list-style-type: none">- On fundoscopy, hard exudates appear as a 'macular star' (thin white streaks radiating around the macula), disc swelling, cotton wool spots, flame haemorrhages and arterial or venous occlusions. <p><i>Key phrases in the exam that help you pick Hypertensive retinopathy as the answer:</i></p> <ul style="list-style-type: none">- <i>Copper or silver wiring</i>- <i>Arteriovenous nipping</i>- <i>Flamed shaped haemorrhage - also found in diabetic retinopathy</i>- <i>Usually one of these 3 terms would appear in the stem</i> <p>Management</p> <ul style="list-style-type: none">- Aimed at controlling the hypertension
32.	<p>A 40 year old man has pain, redness and swelling over the nasal end of his right lower eyelid. The eye is watery with some purulent discharge. The redness extends on to the nasal peri-orbital area and mucoid discharge can be expressed from the lacrimal punctum. What is the SINGLE most appropriate clinical diagnosis?</p> <p>A. Acute conjunctivitis B. Acute dacryocystitis C. Acute iritis D. Retrobulbar neuritis E. Scleritis</p> <p>Acute dacryocystitis</p> <p>Acute dacryocystitis is an acute inflammation of the lacrimal sac, often as a result of infection.</p> <p>Presentation</p> <p>Symptoms and signs are over the region of the lacrimal sac (but may spread to the nose and face with teeth pain being experienced by some). Therefore, look just lateral and below the bridge of the nose for:</p> <ul style="list-style-type: none">- Excess tears (epiphora)- Pain- Swelling and erythema at the inner canthus of the eye <p>Immediate antibiotic therapy may resolve the infection.</p>
33.	<p>A 20 year old man comes with a 3 day history of a burning red left eye with sticky greenish discharge. For the past few mornings, he says that his eyelids are stuck shut on waking. What is the SINGLE most likely affected anatomical structure?</p> <p>A. Iris B. Ciliary body C. Cornea D. Conjunctiva E. Sclera</p>



	<p>The given scenario is a clinical presentation of bacterial conjunctivitis. The term itself gives away the anatomical location of the infection - conjunctiva.</p> <p>It is important to remember the management of bacterial conjunctivitis as this can be asked.</p>
34.	<p>A 37 year old lady has been suffering from early morning stiffness of her small joints for several months. She takes regular NSAIDS to manage the pain of her joints. She attends clinic with a painful red eye. What is the SINGLE most likely affected anatomical structure?</p> <p>A. Iris B. Ciliary body C. Cornea D. Sclera E. Conjunctiva</p> <p>One of the ocular manifestation of rheumatoid arthritis is scleritis which presents with an erythematous, painful eye.</p> <p>Ocular manifestations of rheumatoid arthritis Ocular manifestations of rheumatoid arthritis are common</p> <p>Remember these 4:</p> <ul style="list-style-type: none">- <i>Keratoconjunctivitis sicca</i> → is the most common- <i>Episcleritis</i> → presents with erythema (pain is also present but less severe than scleritis)- <i>Scleritis</i> → presents with erythema and pain- <i>Iatrogenic steroid-induced cataracts</i>
35.	<p>A 24 year old has a marked eye pain, sticky red eye with a congested conjunctiva for the past 7 days. He says that his eyes feel stuck together in the morning. What is the SINGLE most appropriate treatment?</p> <p>A. Oral antibiotic B. Oral antihistamine C. Antibiotic drops D. Steroid and antibiotic drops E. Saline drops</p> <p>There has been a long debate regarding the use of topical antibiotics in bacterial conjunctivitis. NHS has been moving towards using self care rather than antibiotics for infective conjunctivitis. For most people, use of a topical ocular antibiotic makes little difference to recovery from infective conjunctivitis and up to 10% of people treated with topical ocular antibiotics complain of adverse reactions to treatment. Not to mention, that the risk of a serious complication from untreated infective conjunctivitis is low.</p> <p>Thus, one should only consider topical ocular antibiotics if the infective conjunctivitis is severe, or likely to become severe, providing serious causes of a red eye can be confidently excluded.</p>



It would seem reasonable to consider infective conjunctivitis to be severe when the person considers the symptoms to be distressing or signs are judged to be severe from clinical experience. However, it is obvious that you will not be able to tell based on the PLAB questions if it is severe conjunctivitis or mild conjunctivitis. So a good guideline that you should follow is based on time. If the patient has infective conjunctivitis for more than 7 days, then start the patient on topical antibiotics. If it is less than 7 days, then choose the option that has self-care rather than topical antibiotics.

Topical steroids is always going to be the wrong answer unless it is herpes simplex virus conjunctivitis. It is only used if keratitis extends deep into the stroma.

Bacterial conjunctivitis management

- Most cases of infective conjunctivitis do not need medical treatment and clear up in one to two weeks.
- Gently clean away sticky discharge from your eyelids and lashes using cotton wool soaked in water.
- If the decision is made to use antibiotics → chloramphenicol drops is the drug of choice. Chloramphenicol has a broad spectrum of activity and is the drug of choice for superficial eye infections. It is bacteriostatic, with a relatively broad spectrum of action against most Gram-positive and Gram-negative bacteria.

Types of conjunctivitis:

Bacterial conjunctivitis	Viral conjunctivitis	Allergic conjunctivitis
<ul style="list-style-type: none">- Purulent discharge- Eyes may be 'stuck together' in the morning	<ul style="list-style-type: none">- Serous discharge- Recent URTI- Preauricular lymph nodes	<ul style="list-style-type: none">- Bilateral symptoms- Itch is prominent- May give a history of atopy- May be seasonal (due to pollen) or perennial (due to dust mite, washing powder or other allergens)

- 36.** A 38 year old female has reduced vision and eye pain both eyes. She has had a similar episode about a year ago which resolved completely within 3 months. She says that the red colour appears "washed out". On physical examination, mild weakness of right upper limb was appreciated and exaggerated reflexes was appreciated. What is the SINGLE most appropriate management?

- A. Panretinal photocoagulation
- B. Pilocarpine eye drops
- C. Corticosteroids**
- D. Peripheral iridectomy
- E. Surgical extraction of lens



	<p>Optic neuritis is diagnosed clinically by symptoms of acute unilateral decrease in vision, eye pain-especially with movement and decreased color vision/contrast/brightness sense and documentation of a visual field defect. The focal neurological symptoms and exaggerated reflexes all points towards multiple sclerosis which is the probably cause of optic neuritis in which case corticosteroids would be used as part of the management.</p> <p>Optic neuritis (ON) Inflammation of the optic nerve</p> <p>Presentation</p> <ul style="list-style-type: none">- Classically there is a triad of clinical features which are:<ul style="list-style-type: none">o Reduced vision (of varying severity) → <i>Usually unilateral. Progresses for less than 2 weeks and spontaneously improves within 3 weeks.</i>o Eye pain → <i>Particularly on movement</i>o Impaired colour vision → <i>Initially loss of red colour vision</i>- One of the most common cause of optic neuritis is multiple sclerosis → Seen especially in caucasian populations <i>The stem would usually (but not always) include a female patient as multiple sclerosis is more prevalent in the female gender</i>- Examination<ul style="list-style-type: none">o Swollen optic disco Optic disc becomes pale later (4 to 6 weeks after onset)
37.	<p>A 60 year old woman has decreased vision over the past year. She is not able to see well at night. She has changed her spectacles several times recently due to refraction changed but she still complains of glare. She has a normal pupil on examination. What is the SINGLE most likely diagnosis?</p> <p>A. Cataract B. Glaucoma C. Retinal detachment D. Iritis E. Giant cell arteritis</p> <p>The key to note here is the frequent change spectacles due to change of refraction. This on top of the complaints of glare and reduce vision points towards cataracts. Sometimes in PLAB, they will also give a history of long term steroid which may be the aetiology behind cataracts formation.</p> <p>Cataract</p> <p>Presentation Blurred vision; unilateral cataracts are often unnoticed, but loss of stereopsis affects distance judgment. Bilateral cataracts cause gradual loss of vision (frequent spectacle changes as refraction changes) ± dazzle (especially In sunlight) ± monocular diplopia. In children they may present as squint, loss of binocular function, or a white pupil</p>



38.	<p>Which of the following is not a degenerative corneal disease?</p> <p>A. Band keratopathy B. Pellucid marginal degeneration C. Mooren's ulcer D. Terrien marginal degeneration E. Keratoconus</p> <p>Mooren's ulceration is characterized by painful peripheral corneal ulceration of unknown aetiology. It is not a degenerative corneal disease. Pain is almost always associated with the onset of Mooren's ulcer. The eye is usually red and the vision may or may not be reduced.</p>
39.	<p>A 49 year old woman complains of reduction of vision and dull pain in her left eye for the past 2 weeks. Her past medical history includes multiple sclerosis which was diagnosed 2 years ago. On examination, both pupils constrict when light is directed to the right eye but both pupils fail to constrict fully when light is directed to the left eye. What is the SINGLE most likely defect to accompany her diagnosis?</p> <p>A. Paracentral scotoma B. Monocular visual field loss C. Bitemporal hemianopsia D. Central scotoma E. Homonymous hemianopia</p> <p>Optic neuritis is the likely diagnosis here. It usually presents with acute or subacute unilateral decrease in vision and eye pain particularly on movement. The fact that she has multiple sclerosis is a huge hint. Visual field loss is a known feature of optic neuritis. Some may argue that scotoma can also be present in optic neuritis, but in reality monocular visual field loss is more frequently seen.</p> <p>To understand the reason behind the patient's pupils dilating when the light stimulus is directed to the affected eye (left eye), one has to understand the principles of the Marcus Gunn test. In the Marcus Gunn test, light stimulation of the normal eye produces full constriction in both pupils. Immediate subsequent stimulus of the affected eye produces an apparent dilation in both pupils since the stimulus carried through that optic nerve is weaker. The affected eye still senses light and produces pupillary sphincter constriction to some degree but it's less compared to the normal eye. This is specifically seen in optic neuropathy such as optic neuritis.</p> <p>Optic neuritis (ON) Inflammation of the optic nerve</p> <p>Presentation</p> <ul style="list-style-type: none">- Classically there is a triad of clinical features which are:<ul style="list-style-type: none">o Reduced vision (of varying severity) → <i>Usually unilateral. Progresses for less than 2 weeks and spontaneously improves within 3 weeks.</i>o Eye pain → <i>Particularly on movement</i>



	<ul style="list-style-type: none">○ Impaired colour vision → <i>Initially loss of red colour vision</i>- One of the most common cause of optic neuritis is multiple sclerosis → Seen especially in caucasian populations <i>The stem would usually (but not always) include a female patient as multiple sclerosis is more prevalent in the female gender</i>- Examination<ul style="list-style-type: none">○ Swollen optic disc○ Optic disc becomes pale later (4 to 6 weeks after onset)
40.	<p>A 32 year old woman complains of dull pain in her right eye for the past one week which worsens when moving her eye. Her past medical history includes multiple sclerosis which was diagnosed 6 months ago. An ophthalmoscopy shows pallor of the optic disc. Which anatomical site is most likely to be affected?</p> <p>A. Optic nerve B. Sclera C. Optic radiation D. Trigeminal nerve E. Oculomotor nerve</p> <p>Optic neuritis is a relatively common presenting symptom of Multiple Sclerosis. It is due to the demyelination of the optic nerve.</p> <p>Optic neuritis (ON) Inflammation of the optic nerve</p> <p>Presentation</p> <ul style="list-style-type: none">- Classically there is a triad of clinical features which are:<ul style="list-style-type: none">○ Reduced vision (of varying severity) → <i>Usually unilateral. Progresses for less than 2 weeks and spontaneously improves within 3 weeks.</i>○ Eye pain → <i>Particularly on movement</i>○ Impaired colour vision → <i>Initially loss of red colour vision</i>- One of the most common cause of optic neuritis is multiple sclerosis → Seen especially in caucasian populations <i>The stem would usually (but not always) include a female patient as multiple sclerosis is more prevalent in the female gender</i>- Examination<ul style="list-style-type: none">○ Swollen optic disc○ Optic disc becomes pale later (4 to 6 weeks after onset)



41.	<p>A 41 year old man presents with visual symptoms and a headache. An ophthalmoscopic examination shows papilloedema. Which anatomical site is most likely to be affected?</p> <p>A. Retina B. Optic disc C. Optic radiation D. Macula E. Optic chiasma</p> <p>Papilloedema is optic disc swelling resulting from raised intracranial pressure.</p>
42.	<p>A 33 year old female complains of double vision which started yesterday. On examination, a fixed dilated pupil which does not accommodate and drooping eyelid can be seen on the left eye. Her left eye is displaced outward and downwards. She has no significant past medical history. There was no history of trauma. What is the SINGLE most appropriate investigation to perform?</p> <p>A. Ophthalmoscopy B. Computed tomographic angiography C. Thyroid function test D. Visual field test E. Red reflex examination</p> <p>This is a case of oculomotor nerve palsy. Diplopia, mydriasis, ptosis, outward downward deviation of the eye as described here are clinical features of oculomotor nerve palsy. An oculomotor nerve palsy can be associated with vascular disorders such as diabetes, or particularly posterior communicating artery aneurysm. Other causes include space occupying tumours, infarction. abscess and trauma.</p> <p>Angiographic imaging studies are often necessary in the evaluation of acute oculomotor nerve palsy. A computed tomographic angiography would be a good option here to help exclude a posterior communicating artery aneurysm. Note that this can also be done with a magnetic resonance angiography. MRI would also be useful as it is a more sensitive imaging technique than CT scan for picking out a small intraparenchymal brainstem lesion, such as infarction, small abscess, or tumor however CT scan is more sensitive than MRI to demonstrate subarachnoid hemorrhage. All of these have potential to cause an oculomotor nerve palsy.</p> <p>Oculomotor nerve palsy</p> <ul style="list-style-type: none">- The initial sign is often a fixed dilated pupil which does not accommodate- Then ptosis develops- Unopposed lateral rectus causes outward deviation of the eye. Characteristic down and out position of the affected eye. <p><i>The simple method to remember this for the exam is:</i> CN III - Oculomotor nerve</p>



	<ul style="list-style-type: none">- Will have features of either ptosis and/or a dilated pupil on the nerve on the same side as the affected eye- Mnemonic: Letter "O" for oculomotor which with good imagination can represent a dilated pupil.
43.	<p>A 62 year old hypertensive man comes into clinic with blurred vision. He usually takes amlodipine to manage his blood pressure and has been taking it for the past 10 years. His blood pressure currently ranges between 150/90 mmHg to 160/100 mmHg. An ophthalmoscope reveals dot blot haemorrhages, ischaemic changes and hard exudates. What is the SINGLE most likely diagnosis?</p> <p>A. Macular degeneration B. Central retinal vein occlusion C. Hypertensive retinopathy D. Proliferative diabetic retinopathy E. Non-proliferative diabetic retinopathy</p> <p>This patient has uncontrolled blood pressure. The major risk for arteriosclerotic hypertensive retinopathy is the duration of elevated blood pressure which is seen here as 10 years. Retinal haemorrhages develop when necrotic vessels bleed into either the nerve fiber layer (flame shaped hemorrhage) or the inner retina (dot blot hemorrhage). Ischaemic changes and hard exudates are also seen in hypertensive retinopathy.</p> <p>The clinical appearance on a dilated fundoscopic exam and the coexisting hypertension gives the diagnosis of hypertensive retinopathy.</p> <p>It is important to note that background retinopathy (non-proliferative) may also have many similar findings on the fundoscopy which include microaneurysms (dots), haemorrhage (flame shaped or blots) and hard exudates (yellow patches) but the history of uncontrolled hypertension makes hypertensive retinopathy a better choice.</p> <p>Hypertensive retinopathy</p> <p>Most patients with hypertensive retinopathy have no symptoms.</p> <p>Chronic hypertension (blood pressure > 140/90 mmHg):</p> <ul style="list-style-type: none">- Usually asymptomatic- Fundoscopy reveals bilateral attenuation of arterial vessels ('copper or silver wiring'), arteriovenous nicking (where the arteries cross the veins) and, eventually, haemorrhage and exudates <p>Malignant (accelerated) hypertension (clinic blood pressure >180/110 mmHg):</p> <ul style="list-style-type: none">- May have headaches and decreased vision- On fundoscopy, hard exudates appear as a 'macular star' (thin white streaks radiating around the macula), disc swelling, cotton wool spots, flame haemorrhages and arterial or venous occlusions.



	<p>Key phrases in the exam that help you pick Hypertensive retinopathy as the answer:</p> <ul style="list-style-type: none">- Copper or silver wiring- Arteriovenous nipping- Flamed shaped haemorrhage - also found in diabetic retinopathy <p>Usually one of these 3 terms would appear in the stem</p> <p>Management</p> <ul style="list-style-type: none">- Aimed at controlling the hypertension
44.	<p>A 39 year old woman has been having gradual loss of vision in both eyes over the past 6 months. She has a diagnosis of rheumatoid arthritis and has been on treatment for it for the past 4 years. Her intraocular pressure is within normal limits and red reflex is absent in both eyes. What is the SINGLE most likely diagnosis?</p> <p>A. Cataract B. Diabetic retinopathy C. Hypermetropia D. Macular degeneration E. Hypertensive retinopathy</p> <p>The diagnosis here is steroid induced cataracts. Long term use of steroids as seen in someone with an autoimmune condition like rheumatoid arthritis can cause cataracts.</p> <p>There are certain keywords or hints that you may find on the PLAB test that would lean you towards cataracts. These are:</p> <ul style="list-style-type: none">- Exposure to great amounts of UV light i.e. Person from Australia who never wears sunglasses- Long term use of steroids (They may not say the words "steroids" but they may give a scenario with someone who is with a long standing condition that needs the use of steroids)- A high myopia- Trauma to eye



SAMPLE



ORTHOPAEDICS

SAMPLE



1.	<p>A 58 year old woman fell with an outstretched hand. She presents with dinner fork deformity and tenderness over the right arm. She complains of numbness of the hand. What is the SINGLE most likely associated nerve injury?</p> <p>A. Axillary nerve B. Radial nerve C. Musculocutaneous nerve D. Median nerve E. Ulnar nerve</p> <p>Colles' fracture</p> <p>Results from fall on an outstretched hand, often in old osteoporotic women. The deformed and painful wrist looks like a "dinner fork,". The main lesion is a dorsally displaced, dorsally angulated fracture of the distal radius.</p> <p>Numbness of the hand can occur because of compression on the median nerve across the wrist.</p> <p>It is important to remember the key phrases for nerve damage during PLAB. There are certain phrases you need to memorise to relate it to a specific nerve damages. Examples:</p> <p>Wrist drop → Radial nerve Foot drop → Either common peroneal nerve or sciatic nerve Claw hand → Ulnar nerve Paraesthesia of thumb, index and middle finger → Median nerve Numbness on superior aspect of upper arm just below shoulder joint → Axillary nerve Fibular neck fracture → Common peroneal nerve Femur neck fracture or Acetabular fractures → Sciatic nerve Fracture of humeral shaft → Likely Radial nerve Fracture of humeral neck → Likely Axillary nerve Monteggia fracture → Radial nerve Paraesthesia and impaired sensation in both hands (glove distribution) → Peripheral neuropathy</p>
2.	<p>A 62 year old man has bone pain at his hips and back. On further investigation, alkaline phosphatase was found to be elevated in his blood. An X-ray shows multifocal sclerotic patches in the skull. What is the SINGLE most likely diagnosis?</p> <p>A. Paget's disease B. Osteoporosis C. Osteomalacia D. Multiple myeloma E. Ankylosing spondylitis</p>



Note: there are two types of Paget's disease:

1. Paget's disease of the bone (osteitis deformans)
2. Paget's disease of the breast

Paget's disease (osteitis deformans)

Think of Paget's disease as a bone-making process (bone turnover) becoming faster and out of control. There is increased bone resorption and abnormal osteoclast activity followed by rapid increase in bone formation by osteoblast. The new bone structure ends up being disorganised and mechanically weaker, more bulky, less compact, more vascular, and liable to pathological fracture and deformity.

Paget's disease can affect any bone but is most common in the axial skeleton, long bones, and the skull. The usual sites are the pelvis, lumbar spine, femur, skull and tibia.

Presentation

- It is commonly asymptomatic and is discovered by the incidental finding of an elevated serum alkaline phosphatase or characteristic abnormality on X-ray
- When symptoms occur, the most common complaints are bone pain and/or deformity
 - o Bone pain may be present at rest and on movement
 - o Bone deformity includes sabre tibia (bowing of the tibia), kyphosis, and frontal bossing of the skull.
 - o Other presentations include pathological fractures
 - o Deafness and tinnitus may be due to compression of cranial nerve VIII
 - o High-output cardiac failure (due to increased blood flow through affected bone)

Investigations

- There are specific X-ray features of Paget's disease that include:
 - o A classical V-shaped pattern between healthy and diseased long bones known as 'the blade of grass' lesion
 - o The 'cotton wool' pattern in the skull that is also characteristic (multifocal sclerotic patches)
- Serum calcium and parathyroid hormone levels are usually normal but immobilisation may lead to hypercalcaemia
- Alkaline phosphatase is markedly raised

Note: Osteosarcoma is one of the complications thus Paget's needs to be monitored closely.

Management

- Bisphosphonates



3.	<p>A 15 year old boy presents with a limp and pain in the left knee. Physical examination shows the leg is externally rotated and 2 cm shorter. There is limitation of flexion, abduction and medial rotation. As the hip is flexed, it external rotates. What is the SINGLE most likely diagnosis?</p> <p>A. Juvenile rheumatoid arthritis B. Osgood-schlatter disease C. Reactive arthritis D. Slipped upper femoral epiphysis E. Transient synovitis of the hip</p> <p>Slipped Upper Femoral Epiphysis usually cause groin pain on the affected side, but sometimes cause knee or thigh pain. Usually in slipped upper femoral epiphysis, there is limited hip motion, and as the hip is flexed the thigh goes into external rotation and cannot be rotated internally.</p> <p>Slipped upper femoral epiphysis (SUFE)</p> <p>Slipped upper femoral epiphysis is an orthopedic emergency. The typical patient is a chubby boy, around age 13. They complain of groin (or knee) pain and are noted to be limping.</p> <p>It is caused by the displacement of the femoral epiphysis (growth plate) in relation to the femoral neck. It is the commonest cause of a limp in a boy aged 12–14 or girl aged 11–13 (growth spurt at puberty). In this age group, it must be actively excluded in a limping child.</p> <p>Classic presentation is a limping, obese, 13 year old boy with knee pain.</p> <p>Risk factors include:</p> <ul style="list-style-type: none">- Obesity- Rapid growth- Male—♂:♀, 3:1 <p>Clinical features</p> <ul style="list-style-type: none">- The affected limb will be shorter and lies in external rotation- Abduction is limited. When the hip is flexed, it will rotate externally <p><i>Note: the left side is usually more commonly affected compared to the right side</i></p>
4.	<p>A 2 year old girl presents with a painless limp. On examination, there is unequal skin folds and the left leg is shorter than the right leg. What is the SINGLE most likely diagnosis?</p> <p>A. Transient synovitis B. Developmental dysplasia of the hip C. Perthes' disease D. Juvenile idiopathic arthritis E. Slipped capital femoral epiphysis</p>



	<p>Developmental dysplasia of the hip (DDH)</p> <ul style="list-style-type: none">- Formerly referred to as congenital dislocation of the hip (CDH). DDH is now the preferred term to reflect that DDH is an ongoing developmental process.- Defined simply as abnormal growth of the hip- More common in the left hip <p>An important risk factor to remember is vaginal delivery of babies with breech .</p> <p>Barlow test: attempts to dislocate an articulated femoral head Ortolani test: attempts to relocate a dislocated femoral head</p> <p>Ultrasound is used to confirm the diagnosis if clinically suspected</p> <p>Management</p> <ul style="list-style-type: none">- Pavlik harness in children younger than 4-6 months- Surgery is reserved for older children
5.	<p>A 33 year old woman with a previous history of pain at the left wrist following a fall on her outstretched hand 4 months ago presents with pain in the same wrist below the thumb. She has not seek any medical advice or treatment prior to this. She says that the pain is aggravated when she holds her baby. What is the SINGLE most likely cause?</p> <p>A. Fracture radial head B. Scaphoid fracture C. Carpal tunnel syndrome D. Colles' fracture E. Ulnar fracture</p> <p>The likely diagnosis here is a scaphoid fracture.</p> <p>A very typical scenario is a young person who falls on his or her outstretched hand with forced dorsiflexion. In this scenario, she fractures her scaphoid 4 months ago. As there was no management in place, likely a non-union would be in the differential. Non-union occurs in approximately 5-10% of nondisplaced scaphoid fractures.</p> <p>The pain aggravated when she holds baby gives us a little small clue that she may be having pain during supination against resistance.</p> <p>Signs: Tender in anatomical snuff box and over scaphoid tubercle, pain on axial compression of the thumb, and on ulnar deviation of the pronated wrist, or supination against resistance.</p> <p>If initial X-rays are negative, cast and re-X-ray in 2 weeks.</p>



6.	<p>A 24 year old man falls on an outstretched hand while playing football. He comes in complaining of pain at the base of the thumb. On physical examination, he is tender to palpate over the anatomic snuff-box. Wrist movement, particularly pronation followed by ulnar deviation is painful. X-rays are read as negative. What is the SINGLE most appropriate next management?</p> <p>A. Reassurance and analgesia B. Surgery C. Immobilization of the wrist and review in 2 weeks D. Scaphoid cast for 6 weeks E. High arm sling and rest</p> <p>This is a typical presentation of a scaphoid fracture.</p> <p>It is a very debatable question. The answers C and D both may seem right. But the more appropriate answer of the two would be C.</p> <p><i>First we need to understand Scaphoid fractures.</i></p> <p><i>A very typical scenario is a young man who falls on his outstretched hand with forced dorsiflexion. X-rays are usually negative but if repeated in 2 weeks become positive.</i></p> <p><i>They are also infamous because of a high rate of nonunion.</i></p> <p><i>Signs: Tender in anatomical snuff box and over scaphoid tubercle, pain on axial compression of the thumb, and on ulnar deviation of the pronated wrist, or supination against resistance.</i></p> <p><i>If initial X-rays are negative, cast and re-x-ray in 2 weeks.</i></p> <p>Unfortunately, for this question, re-x ray was not an option. So many candidates would have picked “D. Scaphoid cast for 6 weeks”. We asked orthopaedic registrars regarding this question, and most would agree that “C. Immobilization of the wrist and review in 2 weeks” would be a better answer because you should not cast for 6 weeks without knowing if there is actually a fracture. Thus immobilize for 2 weeks, and review (and obtain X-rays). If fracture is seen after 2 weeks, then cast for another 4 more weeks.</p>
7.	<p>A 26 year old primigravida pregnant woman at 34 weeks gestation presents with tingling and numbness with occasional pain of her right hand in addition to altered sensation over her right middle and index finger. Tinel test is negative. What is the SINGLE most likely diagnosis?</p> <p>A. Carpal Tunnel Syndrome B. Radial nerve entrapment C. Scaphoid fracture D. Median nerve entrapment E. Peripheral arterial disease</p>



	<p>Because the stem states that Tinel test is negative, you may be tricked into choosing a different answer but remember that the Tinel test has a very low sensitivity for carpal tunnel syndrome. If the patient has a high suspicion of having carpal tunnel syndrome such as the classic tingling and numbness over the median distribution of the hand as well as being pregnant (which is a high risk factor for carpal tunnel syndrome) then you should always choose carpal tunnel syndrome as the answer.</p> <p>Pregnancy is a known risk for carpal tunnel syndrome. In pregnancy, carpal tunnel is due to fluid retention. The best thing to do is to advise the pregnant women to wear wrist splints until delivery as after delivery, the carpal tunnel syndrome usually resolves.</p>
8.	<p>A 7 year old boy falls on his right hand with the arm extended. He has severe pain around the elbow. X-ray imaging show a supracondylar fracture of the humerus. The distal fragment is displaced posteriorly. What is the SINGLE most likely structure to be damage?</p> <p>A. Anterior ulnar recurrent artery B. Posterior ulnar recurrent artery C. Ulnar artery D. Radial artery E. Brachial artery</p> <p>Supracondylar fracture of humerus is the most common fracture of childhood, with a peak incidence between the ages of 5 and 7 years. It occurs occur with hyperextension of the elbow in a child who falls on the hand, with the arm extended. These fractures may compromise brachial artery, median, radial or ulnar nerve function so check neurovascular status. Keeping the elbow in extension after injury prevents exacerbating brachial artery damage from the time of injury.</p>
9.	<p>An 80 year old woman with mild dementia at a nursing home tripped and fell on her hand. X-ray revealed a fracture of the distal end of the radius with a 10 degree dorsal angulation. What is the SINGLE best management for her?</p> <p>A. Closed reduction of the fracture B. Open reduction and internal fixation C. Above elbow backslab cast D. Plaster of Paris cast below elbow E. Wrist sling</p> <p>To choose the correct answer, we first need to know the diagnosis. This is a Colles' fracture.</p> <p>Colles' fracture is a fracture of the distal radius with dorsal displacement of fragments. It typically occurs from a fall onto an outstretched hand that results in forced dorsiflexion of the wrist. The characteristic dinner fork deformity makes it easy to recognize, along with the classical history. The management of the type of cast to be used in a Colles' fracture is still heavily debated however, the patient's age and any potential disability should be taken</p>



	<p>into consideration. We should always aim to tailor management for individual patients and their needs rather than apply generalized rules across the population.</p> <p>This patient is elderly and she has mild dementia. In this situation, the best type of management for her should be a complete cast below the elbow in order to maximally immobilize her wrist and prevent further injury to her wrist, thus causing potential complications.</p> <p>A backslab is the preferred method of management for younger patients</p> <p>Surgical reduction is reserved for intra-articular fractures and if there is any intra-articular incongruity. Since there was no mention of this in the question, open reduction and internal fixation is the wrong choice.</p>
10.	<p>A 30 year old lady was playing volleyball when her hand got injured with the volleyball. The right hand is not swollen and there is tenderness under the root of the thumb. Wrist movement, particularly pronation followed by ulnar deviation is painful. X-ray of the wrist show no presence of fractures. What is the SINGLE most appropriate next step in management?</p> <p>A. Apply arm sling for 1 week B. Reassurance and analgesia C. Repeat X-ray in 2 weeks D. Full arm cast for 1 week E. Surgical exploration</p> <p>The likely diagnosis is scaphoid fracture where the initial X-ray may not show the fracture right away.</p> <p>A very typical scenario is a young person who falls on his or her outstretched hand with forced dorsiflexion. In this scenario, she fractures her scaphoid from a volley. X-rays are usually negative but if repeated in 2 weeks become positive.</p> <p>They are also infamous because of a high rate of nonunion.</p> <p>Signs: Tender in anatomical snuff box and over scaphoid tubercle, pain on axial compression of the thumb, and on ulnar deviation of the pronated wrist, or supination against resistance.</p> <p>If initial X-rays are negative, cast and re-X-ray in 2 weeks.</p>



11. A 13 year old boy presents with pain in the groin. He is seen limping. There was no history of trauma. There is limited hip motion, and as the hip is flexed the thigh goes into external rotation and cannot be rotated internally. When the boy is lying down, the left leg is 2 cm shorter than the right leg and it is externally rotated. What is the SINGLE most likely diagnosis?

- A. Juvenile rheumatoid arthritis
- B. Septic arthritis
- C. Reactive arthritis
- D. Slipped upper femoral epiphysis**
- E. Transient synovitis of the hip

Slipped Upper Femoral Epiphysis usually cause groin pain on the affected side, but sometimes cause knee or thigh pain. Usually in slipped upper femoral epiphysis, there is limited hip motion, and as the hip is flexed the thigh goes into external rotation and cannot be rotated internally.

Slipped upper femoral epiphysis (SUFE)

Slipped upper femoral epiphysis is an orthopedic emergency. The typical patient is a chubby boy, around age 13. They complain of groin (or knee) pain and are noted to be limping.

It is caused by the displacement of the femoral epiphysis (growth plate) in relation to the femoral neck. It is the commonest cause of a limp in a boy aged 12–14 or girl aged 11–13 (growth spurt at puberty). In this age group, it must be actively excluded in a limping child.

Classic presentation is a limping, obese, 13 year old boy with knee pain.

Risk factors include:

- Obesity
- Rapid growth
- Male—♂:♀, 3:1

Clinical features

- The affected limb will be shorter and lies in external rotation
- Abduction is limited. When the hip is flexed, it will rotate externally

Note: the left side is usually more commonly affected compared to the right side



12. A 60 year old man is brought to the emergency department with a fractured hip. He has been having progressive hearing loss and was recently diagnosed with cardiac failure. Hypercalcaemia was noted on his blood test. What is the SINGLE most likely diagnosis?

A. Paget's disease

- B. Osteoporosis
- C. Osteomalacia
- D. Multiple myeloma
- E. Spondylosis

History of deafness and heart failure favours the diagnosis of Paget's disease.

In Paget's disease, serum calcium levels are usually normal but immobilisation may lead to hypercalcaemia.

Note: there are two types of Paget's disease:

- 3. Paget's disease of the bone (osteitis deformans)
- 4. Paget's disease of the breast

Paget's disease (osteitis deformans)

Think of Paget's disease as a bone-making process (bone turnover) becoming faster and out of control. There is increased bone resorption and abnormal osteoclast activity followed by rapid increase in bone formation by osteoblast. The new bone structure ends up being disorganised and mechanically weaker, more bulky, less compact, more vascular, and liable to pathological fracture and deformity.

Paget's disease can affect any bone but is most common in the axial skeleton, long bones, and the skull. The usual sites are the pelvis, lumbar spine, femur, skull and tibia.

Presentation

- It is commonly asymptomatic and is discovered by the incidental finding of an elevated serum alkaline phosphatase or characteristic abnormality on X-ray
- When symptoms occur, the most common complaints are bone pain and/or deformity
 - o Bone pain may be present at rest and on movement
 - o Bone deformity includes sabre tibia (bowing of the tibia), kyphosis, and frontal bossing of the skull.
 - o Other presentations include pathological fractures
 - o Deafness and tinnitus may be due to compression of cranial nerve VIII
 - o High-output cardiac failure (due to increased blood flow through affected bone)

Investigations

- There are specific X-ray features of Paget's disease that include:



	<ul style="list-style-type: none">○ A classical V-shaped pattern between healthy and diseased long bones known as 'the blade of grass' lesion○ The 'cotton wool' pattern in the skull that is also characteristic (multifocal sclerotic patches)- Serum calcium and parathyroid hormone levels are usually normal but immobilisation may lead to hypercalcaemia- Alkaline phosphatase is markedly raised <p>Note: Osteosarcoma is one of the complications thus Paget's needs to be monitored closely.</p> <p>Management</p> <ul style="list-style-type: none">- Bisphosphonates
13.	<p>A 7 year old boy fell on his outstretched arm and presents with pain around the elbow. On examination, radial pulse is absent on the affected hand. What is the SINGLE most likely diagnosis?</p> <p>A. Dislocated elbow B. Angulated supracondylar fractures of the humerus C. Undisplaced fracture of radial head D. Posterior dislocation of shoulder E. Pulled elbow</p> <p>Supracondylar fracture of humerus is the most common fracture of childhood, with a peak incidence between the ages of 5 and 7 years. It occurs occur with hyperextension of the elbow in a child who falls on the hand, with the arm extended. These fractures may compromise brachial artery, median, radial or ulnar nerve function so check neurovascular status. Keeping the elbow in extension after injury prevents exacerbating brachial artery damage from the time of injury.</p> <p>In this question, damage or occlusion of the brachial artery is the cause of absent radial pulse.</p>
14.	<p>A 19 year old boy comes to the emergency department with pain, swelling and tenderness 2 cm distal to Lister's tubercle of radius. He gives a history of falling down on his outstretched hand while playing basketball. On examination, proximal pressure on the extended thumb and index finger is painful. X-ray of the wrist shows no fracture visible. What is the SINGLE most appropriate management?</p> <p>A. Immobilization of wrist with cast and review in 2 weeks B. High arm sling and rest C. Magnetic resonance imaging of wrist D. Surgical exploration E. Reassurance and analgesia</p>



	<p>The likely diagnosis is scaphoid fracture where the initial X-ray may not show the fracture right away. Immobilize the wrist for 2 weeks, and review (and obtain X-rays) would be the best answer among the rest.</p> <p>A very typical scenario is a young person who falls on his or her outstretched hand with forced dorsiflexion. X-rays are usually negative but if repeated in 2 weeks become positive.</p> <p>They are also infamous because of a high rate of nonunion.</p> <p>Signs: Tender in anatomical snuff box and over scaphoid tubercle, pain on axial compression of the thumb, and on ulnar deviation of the pronated wrist, or supination against resistance.</p> <p>If initial X-rays are negative, cast and re-X-ray in 2 weeks.</p>
15.	<p>A 44 year old man slipped while he was coming down the stairs and he fell on his outstretched arm. X-rays demonstrate an oblique fracture of the middle to distal thirds of the humerus. He is unable to dorsiflex his right wrist. What is the SINGLE most likely associated nerve injury?</p> <p>A. Radial nerve B. Musculocutaneous nerve C. Median nerve D. Ulnar nerve E. Axillary nerve</p> <p>SAMPLE</p> <p>The X-ray findings alone which shows a humeral shaft fracture already gives you the answer (a radial nerve injury). If you go on reading, this question gives you a second clue which is a wrist drop (he is unable to dorsiflex his wrist) which is classic for a radial nerve injury</p> <p>Fracture of the humeral shaft is often caused by a fall on an outstretched arm. These fractures can injure the radial nerve, which courses in a spiral groove right around the posterior aspect of that bone.</p> <p>The management of humeral shaft fracture is not commonly asked in PLAB but you may want to know it for your own knowledge:</p> <p>Nonoperative management is adequate for >90% of these fractures. Hanging arm cast or coaptation splint are used, and the nerve function returns eventually. Surgical management may sometimes be needed but are uncommon. These surgical options include intramedullary nailing and compression plating.</p> <p>It is important to remember the key phrases for nerve damage during PLAB. There are certain phrases you need to memorise to relate it to a specific nerve damages.</p>



	<p>Examples:</p> <p>Wrist drop → Radial nerve Foot drop → Either common peroneal nerve or sciatic nerve Claw hand → Ulnar nerve Paraesthesia of thumb, index and middle finger → Median nerve Numbness on superior aspect of upper arm just below shoulder joint → Axillary nerve Fibular neck fracture → Common peroneal nerve Femur neck fracture or Acetabular fractures → Sciatic nerve Fracture of humeral shaft → Likely Radial nerve Fracture of humeral neck → Likely Axillary nerve Monteggia fracture → Radial nerve Paraesthesia and impaired sensation in both hands (glove distribution) → Peripheral neuropathy</p>
16.	<p>A 63 year old man has knee pain and back pain for the last 3 months which is progressively worsening. Bowing of the tibia is noted on examination. He also has pronounced kyphosis. On further investigation, alkaline phosphatase was found to be elevated in his blood. Serum calcium levels were normal. What is the SINGLE most likely diagnosis?</p> <p>A. Multiple myeloma B. Osteoporosis C. Osteomalacia D. Paget's disease E. Ankylosing spondylitis</p> <p>Note: there are two types of Paget's disease:</p> <ol style="list-style-type: none">5. Paget's disease of the bone (osteitis deformans)6. Paget's disease of the breast <p>Paget's disease (osteitis deformans)</p> <p>Think of Paget's disease as a bone-making process (bone turnover) becoming faster and out of control. There is increased bone resorption and abnormal osteoclast activity followed by rapid increase in bone formation by osteoblast. The new bone structure ends up being disorganised and mechanically weaker, more bulky, less compact, more vascular, and liable to pathological fracture and deformity.</p> <p>Paget's disease can affect any bone but is most common in the axial skeleton, long bones, and the skull. The usual sites are the pelvis, lumbar spine, femur, skull and tibia.</p> <p>Presentation</p> <ul style="list-style-type: none">- It is commonly asymptomatic and is discovered by the incidental finding of an elevated serum alkaline phosphatase or characteristic abnormality on X-ray- When symptoms occur, the most common complaints are bone pain and/or deformity<ul style="list-style-type: none">o Bone pain may be present at rest and on movement



	<ul style="list-style-type: none">○ Bone deformity includes sabre tibia (bowing of the tibia), kyphosis, and frontal bossing of the skull.○ Other presentations include pathological fractures○ Deafness and tinnitus may be due to compression of cranial nerve VIII○ High-output cardiac failure (due to increased blood flow through affected bone) <p>Investigations</p> <ul style="list-style-type: none">- There are specific X-ray features of Paget's disease that include:<ul style="list-style-type: none">○ A classical V-shaped pattern between healthy and diseased long bones known as 'the blade of grass' lesion○ The 'cotton wool' pattern in the skull that is also characteristic (multifocal sclerotic patches)- Serum calcium and parathyroid hormone levels are usually normal but immobilisation may lead to hypercalcaemia- Alkaline phosphatase is markedly raised <p>Note: Osteosarcoma is one of the complications thus Paget's needs to be monitored closely.</p> <p>Management</p> <ul style="list-style-type: none">- Bisphosphonates
17.	<p>A 79 year old man had a fall 2 days ago and since then he is unable to bear weight on his right leg. He presents with deformity and tenderness over the right hip area. X-ray shows fracture of the acetabulum. What is the SINGLE most likely associated nerve injury?</p> <p>A. Sciatic nerve B. Gluteal nerve C. Lateral peroneal nerve D. Tibial nerve E. Femoral nerve</p> <p>Acetabular fractures and posterior dislocation of the hip</p> <p>Both acetabular fractures and posterior dislocation of the hip can result in sciatic nerve damage.</p> <p>Sciatic nerve injury: pain in the distribution of the sciatic nerve, loss of sensation in the posterior leg and foot and loss of dorsiflexion (peroneal branch)</p> <p>For these fractures always check for sciatic nerve damage → Examine foot dorsiflexion and below knee sensation.</p>



18.	<p>A 35 year old male typist suffered a wrist injury after falling on his right outstretched hand. He was treated with a scaphoid cast with the probable diagnosis of a scaphoid fracture. The cast was removed after 2 weeks from the injury for a repeat X-ray. After removing the cast, he noted that he he had difficulty in moving his right thumb, index and middle finger. There was also a tingling sensation on those fingers. What is the SINGLE most likely management that would improve his symptoms?</p> <p>A. Release of flexor retinaculum B. Release of common flexor sheath C. Release of palmar aponeurosis D. Ulnar nerve release E. Fasciotomy</p> <p>Carpal tunnel syndrome is characterised by tingling, numbness, or pain in the distribution of the median nerve (the thumb, index, and middle fingers, and medial half the ring finger on the palmar aspect) that is often worse at night and causes waking. It is due to compression of the median nerve as it passes under the flexor retinaculum.</p> <p>In this stem, the first hint is that he is a typist. Long hours of keyboard use may lead to or aggravate carpal tunnel syndrome. Flexion or extension injury of the wrist can also be a secondary cause of carpal tunnel syndrome although it is rare that symptoms would arise in such a short time from the injury and immediately from removal of the cast. Given the rest of the options, release of the flexor retinaculum is the only option that would help improve symptoms should this be a diagnosis of carpal tunnel syndrome.</p>
19.	<p>A 28 year old man was involved in a road traffic accident. He has severe pain in his shoulder and upper arm. There is loss of shoulder and arm function with bruising seen at the anterior shoulder on examination. X-ray shows a fracture of the neck of humerus. What is the SINGLE most associated neurovascular injury?</p> <p>A. Suprascapular nerve injury B. Radial nerve injury C. Axillary artery injury D. Brachial artery injury E. Axillary nerve injury</p> <p>Neurovascular injury in proximal humeral fractures</p> <ul style="list-style-type: none">- About a third of proximal humeral fractures produce neurovascular injury- Axillary nerve damage is most common.- Suprascapular, radial and musculocutaneous nerves can also be affected <p>Rarer neurovascular injury in proximal humeral fractures</p> <ul style="list-style-type: none">- Axillary artery injury is possible but rarely occurs- Brachial artery injury also rarely occurs <p>It is important to remember the key phrases for nerve damage during PLAB. There are certain phrases you need to memorise to relate it to a specific nerve damages.</p>



	<p>Examples:</p> <p>Wrist drop → Radial nerve Foot drop → Either common peroneal nerve or sciatic nerve Claw hand → Ulnar nerve Paraesthesia of thumb, index and middle finger → Median nerve Numbness on superior aspect of upper arm just below shoulder joint → Axillary nerve Fibular neck fracture → Common peroneal nerve Femur neck fracture or Acetabular fractures → Sciatic nerve Fracture of humeral shaft → Likely Radial nerve Fracture of humeral neck → Likely Axillary nerve Monteggia fracture → Radial nerve Paraesthesia and impaired sensation in both hands (glove distribution) → Peripheral neuropathy</p>
20.	<p>A 55 year old woman has a history of a recent radial fracture. In the last decade, she had a colles' fracture in the right forearm and supracondylar humerus fracture of the left arm. She used to take corticosteroids for 2 years as part of managing her inflammatory bowel disease. What is the SINGLE most appropriate investigation to perform?</p> <p>A. Dual-energy X-ray absorptiometry (DEXA) scan B. Magnetic resonance imaging C. Nuclear bone scan D. Computed tomography E. Bone biopsy</p> <p>It is clear from the given history and the corticosteroid use that this is likely a case of osteoporosis. Other added risk factors in the stem include her sex (female) and her age (postmenopausal). Diagnosis of osteoporosis centres on the assessment of bone mineral density. DEXA is regarded as the gold standard technique for the diagnosis of osteoporosis.</p>
21.	<p>A 33 year old pregnant woman presents with right knee pain worse when moving the joint. The pain has been present for the last 4 months but it is worsening. The pain is noted to be worse at the end of the day. X-ray shows decreased joint space in the right knee. Blood results show a CRP of 12. What is the SINGLE most appropriate management?</p> <p>A. Paracetamol B. Oral nonsteroidal anti-inflammatory drugs (NSAIDs) C. Oral steroid D. Intra-articular steroid injections E. Disease-modifying antirheumatic drugs (DMARDs)</p> <p>The first step is recognising that this is osteoarthritis. Pain in one joint that is worse towards the end of the day, decreased joint space and inflammatory markers which are not significantly raised are recognisable features of osteoarthritis. Paracetamol is first line for</p>



osteoarthritis. It is also worth noting that she is pregnant and you should avoid prescribing NSAIDs as much as possible in a pregnant woman.

Osteoarthritis

Features to remember

Monoarthritis

- Hip and knee are commonly affected
- Joint pain that is exacerbated by exercise and relieved by rest (sometimes gives a history of pain worsening at the end of the day)
- Bony deformity due to osteophytes
 - o In fingers this presents as swelling at the distal interphalangeal joints (Heberden's nodes) or swelling at the proximal interphalangeal joints (Bouchard's nodes)

Mnemonic for Heberden nodes and Bouchard's nodes

- *Heberden → distal interphalangeal joint (H-D) (High Definition)*
- *Bouchard → proximal interphalangeal joint (B-P) (Blue Picture)*

X ray shows loss of joint space, marginal osteophytes, bone cyst and subarticular sclerosis.

Mnemonic for X-ray features

- *L → Loss of joint space*
- *O → Osteophytes*
- *S → Subchondral cysts*
- *S → Subchondral sclerosis*

Management

- Exercise and physiotherapy
- Weight reduction
- Regular paracetamol
- Topical NSAIDs
- Oral NSAIDs
 - o *Note: Paracetamol and/or topical NSAIDs should be considered ahead of oral NSAIDs*
- Joint surgery as last option

22. A 33 year old woman fell from playing volleyball and hit her right knee. Valgus stress test is seen to be positive. What is the SINGLE most likely structure that is injured?

- A. Anterior cruciate ligament
- B. Posterior cruciate ligament
- C. Lateral collateral ligament
- D. Medial collateral ligament**
- E. Meniscus



	<p>Medial collateral ligament prevents the lateral movement of the tibia on the femur when valgus (away from the midline) stress is placed on the knee.</p> <p>The valgus stress test is performed with the hip abducted and the knee at 30° of flexion, with one hand placed as a pivot on the knee. The other hand is placed on the foot with an abducting force. The idea is to attempt to force the leg at the knee into valgus. The fingers of the hand at the knee is used to feel the amount of joint-line opening that occurs when valgus stress is applied. If the joint-line is seen to open up on the medial side, this is indicative of a medial collateral ligament damage.</p> <p>Test for knee ligament injuries <i>Medial collateral ligament → Valgus stress test</i> <i>Lateral collateral ligament → Varus stress test</i> <i>Anterior cruciate ligament → Anterior drawer test, Lachman test</i> <i>Posterior cruciate ligament → Posterior drawer test</i></p>
23.	<p>A 7 year old boy fell in the playground with arm outstretched an hour ago. He is now seen to be holding his forearm complaining of pain. Examination of his forearm reveals tenderness but no sign of deformity or swelling. An X-ray was performed. What is the SINGLE most likely diagnosis?</p> <p>A. Greenstick fracture of distal radius B. Oblique fracture of the mid ulna C. Transverse fracture of the mid radius D. Spiral fracture of the distal ulna E. Comminuted fracture of scaphoid</p> <p>In the exam, if a child falls and attains a fracture, it is almost always a greenstick injury. The classical fracture in a child is a greenstick injury. This is when there is an incomplete fracture of the long bones. It occurs when the force applied to a bone results in bending of the bone such that the structural integrity of the convex surface is overcome. This usually occurs to a child who falls on an outstretched arm. Because the bones are soft in children, the bending force applied does not break the bone completely and the concave surface of the bent bone remains intact. The fracture resembles the break that results when a supple green branch of a tree is bent and breaks incompletely.</p>
24.	<p>A 35 year old volleyball player has pain in his right arm and shoulder for the past 2 days. He finds it difficult to perform task which involve lifting his arm above his shoulder. His shoulder feels weak. The shoulder pain is worse at night when he is in bed. There is no history of trauma. What is the SINGLE most likely cause of his pain?</p> <p>A. Rupture of the long head of biceps B. Acromioclavicular ligament tear C. Sternocleidomastoid injury D. Supraspinatus tendinitis E. Shoulder dislocation</p>



	<p>Supraspinatus tendinitis Often associated with shoulder impingement syndrome</p> <p>History</p> <ul style="list-style-type: none">- The stem would always have a history of either:- A person with a job that require repetitive overhead activity- A person who has recently been involved in carrying heavy items e.g. moving to a new house- An athlete whose sport involves stressful repetitive overhead motions e.g. swimming, volleyball, tennis, badminton <p>Symptoms</p> <ul style="list-style-type: none">- Pain, weakness and loss of motion<ul style="list-style-type: none">o Pain worsens with overhead or above the shoulder activitieso Pain is often worse at night and can disturb sleep, particularly when lying on the affected shoulder
25.	<p>A 33 year old woman has complaints of pain in her right arm and shoulder when she abducts it. The pain is worse at night and disturbs her sleep. She finds it difficult to perform task which involve lifting her arm such as combing her hair. She has recently moved to a new house and was involved in carrying heavy items. There is no history of trauma. What is the SINGLE most likely cause of her pain?</p> <p>A. Rupture of the long head of biceps B. Acromioclavicular ligament tear C. Sternocleidomastoid injury D. Supraspinatus tendinitis E. Shoulder dislocation</p> <p>Supraspinatus tendinitis Often associated with shoulder impingement syndrome</p> <p>History</p> <ul style="list-style-type: none">- The stem would always have a history of either:- A person with a job that require repetitive overhead activity- A person who has recently been involved in carrying heavy items e.g. moving to a new house- An athlete whose sport involves stressful repetitive overhead motions e.g. swimming, volleyball, tennis, badminton <p>Symptoms</p> <ul style="list-style-type: none">- Pain, weakness and loss of motion<ul style="list-style-type: none">o Pain worsens with overhead or above the shoulder activitieso Pain is often worse at night and can disturb sleep, particularly when lying on the affected shoulder



26.	<p>A 15 year old boy presents with fever and pain in the right lower thigh. The pain has been ongoing for the past one month. On examination, there is a 2 cm by 2 cm mass at the lower third of his thigh which is red, warm and tender. An X-ray shows bone destruction with overlying onion-skin layers of periosteal bone formation and a soft tissue mass. What is the SINGLE most likely diagnosis?</p> <p>A. Tuberculous arthritis B. Ewing's sarcoma C. Osteosarcoma D. Osteomyelitis E. Fibrosarcoma</p> <p>Ewing's sarcoma</p> <ul style="list-style-type: none">- A malignant round-cell tumour of long bones (typically grows in diaphysis of long bones) and limb girdles, usually presents in adolescents (usually 5 to 15 years old) <p>Presentation</p> <ul style="list-style-type: none">- As a mass or swelling commonly in long bones of arms and legs, pelvis or chest- Pain at area of tumour- Other signs and symptoms include: malaise, anorexia, weight loss, fever <p>Investigation</p> <ul style="list-style-type: none">- A typical "onion skinning" type pattern is often seen on X-rays. This is due to bone destruction with overlying concentric layers of new bone formation
27.	<p>A 26 year old man complains of severe pain while trying to grasp objects. It started when he fell during a skiing trip and hit his thumb on the ground while his thumb was abducted. On physical exam there is collateral laxity at the thumb-metacarpophalangeal joint with bruising over the joint. What is the SINGLE most likely deformity?</p> <p>A. Dinner fork deformity B. Gamekeeper thumb C. Mallet finger D. Cubitus varus E. Garden spade deformity</p> <p>Gamekeeper's thumb</p> <ul style="list-style-type: none">- Also known as skier's thumb- An injury to the ulnar collateral ligament (UCL) of the metacarpophalangeal (MCP) joint (on the medial side of the thumb) due to forced abduction of the MCP- Historically suffered by gamekeepers when they killed rabbits by dislocating their necks with violent blows with the extended thumb. However in this era, it is seen as a skiing injury when the thumb is abducted and gets stuck in the snow or the ski strap during a fall <p>Examination</p> <ul style="list-style-type: none">- Collateral laxity at the thumb-metacarpophalangeal joint



	<ul style="list-style-type: none">- Thumb is hyperextended and laterally deviated with swelling- Grasp and pinching ability is reduced <p>Management</p> <ul style="list-style-type: none">- If incomplete ligament injury and the joint is stable → immobilisation in a thumb spica splint for 4-6 weeks
28.	<p>A 12 year old boy attends A&E with pain after falling off his bicycle. A lateral X-ray of his wrist show a fracture at the distal radius with the distal fracture fragment displaced anteriorly. What is the SINGLE most likely diagnosis?</p> <p>A. Dinner fork deformity B. Cubitus valgus C. Gunstock deformity D. Garden spade deformity E. Coxa Vara</p> <p>Smith's fracture</p> <ul style="list-style-type: none">- Also known as reverse Colles' fracture- It is a fracture of the distal radius that has anterior displacement of the distal fragments (opposite to Colles' fracture where there is dorsal displacement of fragments)- It is usually caused by falling backwards like a fall onto the palm of the outstretched hand with the arm above it pronating as the body falls. It can also occur if one falls onto flexed wrist.- The characteristic appearance is called a 'garden spade deformity'- Lateral view of X-ray of a Smith's fracture is very similar to a Colles' fracture except with the displacement anteriorly instead of posteriorly thus the term reverse Colles' fracture
29.	<p>A 61 year old female with a history of osteoporosis suddenly falls on her outstretched hand while shopping. X-ray of the wrist shows a fracture at the distal radius with a backward shift of the distal fragment. What is the SINGLE most likely deformity?</p> <p>A. Cubitus valgus B. Coxa Vara C. Mallet finger D. Dinner fork deformity E. Garden spade deformity</p> <p>Colles' fracture</p> <p>Results from fall on an outstretched hand, often in old osteoporotic women. The deformed and painful wrist looks like a "dinner fork". The main lesion is a dorsally displaced, dorsally angulated fracture of the distal radius.</p>



30.	<p>A 24 year old man presents to A&E after an injury to his hand while playing basketball. Examination of his hand reveals an avulsion of the extensor digitorum tendon from the distal phalanx. What is the SINGLE most likely deformity?</p> <p>A. Dinner fork deformity B. Gamekeeper thumb C. Mallet finger D. Gunstock deformity E. Garden spade deformity</p> <p>A mallet finger is an injury of the extensor digitorum tendon of the fingers at the distal interphalangeal joint. It results from hyperflexion of the extensor digitorum tendon. It occurs when a ball (such as a softball, basketball, or volleyball), while being caught, hits an outstretched finger causing it to bend (flex) further than normal and rupture or stretch the extensor digitorum tendon. Without the use of the extensor digitorum tendon, the finger stays bent (flexed) resembling a mallet.</p> <p>Splint DIP in extension for 6 to 8 weeks is usually adequate to manage this.</p>
31.	<p>A 67 year old woman presents to the emergency department with pain in her left groin. She falls from a chair in the waiting area and now is in severe pain and is not able to move her left leg. She takes alendronate regularly. What is the SINGLE most likely diagnosis?</p> <p>A. Pelvic fracture B. Bursitis C. Femoral shaft fracture D. Femoral neck fracture E. Posterior hip dislocation</p> <p>The use of alendronate indicates that she is likely to be at high risk for an osteoporotic fractures as alendronate is primarily used to prevent fractures in osteoporotic patients. Proximal femur fractures are one of the common areas of fractures seen in osteoporosis. Thus, a fracture of the neck of femur would be the most appropriate answer.</p> <p>Osteoporosis is the reduction in the amount of bony tissue within the skeleton. Osteoporotic bone is at high risk of fracture, even after trivial injury. It usually is clinically silent until an acute fracture like in this stem. Common osteoporotic fractures are seen in hips, wrist (Colles') and compression fractures of vertebral bodies.</p>



32.	<p>A 15 year old boy complains of pain in his leg which usually settles within an hour of taking aspirin. The pain is described as a dull pain which is persistent but is usually worse at night. What is the SINGLE most likely diagnosis?</p> <p>A. Leiomyosarcoma B. Liposarcoma C. Chondrosarcoma D. Exostosis E. Osteoid osteoma</p> <p>The key fact here is the aspirin. The fact that the bone pain responds to aspirin in such a short time period is classic for osteoid osteoma.</p> <p>Osteoid osteoma</p> <ul style="list-style-type: none">- Benign bone tumor that develops in the long bones of the body such as the femur and tibia- Pain is unrelated to activity and is relieved quickly by NSAIDS- Pain usually worse at night- Frequently affects children and young adults- Usually less than 1 cm in diameter <p><i>Important note to remember: Bone pain relieved well by NSAIDs is characteristic for osteoid osteoma</i></p>
33.	<p>A 79 year old woman has a history of a Colles' fracture three weeks ago after falling on a concrete floor with her right hand. She is otherwise fit and well. What is the SINGLE most appropriate investigation to assess her risk for further fracture?</p> <p>A. Radionuclide (isotope) scan B. Dual energy X-ray absorptiometry (DEXA) scan C. Magnetic resonance imaging (MRI) D. X-ray of wrist E. No further investigations required</p> <p>Colles' fracture results from fall on an outstretched hand, often in old osteoporotic women as seen in this stem. The diagnosis of osteoporosis centres on the assessment of bone mineral density of which DEXA is regarded as the gold standard technique for the diagnosis. A DEXA scan is the most commonly used investigation to assess fracture risk by measuring bone density and would be the best option here.</p>



34.	<p>A 59 year old woman has severe back pain. The back pain is suspected to caused by bone metastases. What organ is the SINGLE most likely tumour arising from causing bone metastases?</p> <p>A. Lungs B. Cervix C. Ovary D. Uterus E. Breast</p> <p>In females, the most common tumour causing bone metastases is the breast. Second to that is the lungs.</p> <p>In males, the most common tumour causing bone metastases is the prostate. Second to that is the lungs.</p> <p>The most common site for bone metastases to occur is in the spine. Then the pelvis, ribs, skull and long bones.</p>
35.	<p>A 60 year old female has pain and stiffness in her right hip joint. The pain has been worsening over the past 6 months. The pain increases in intensity as the day progresses and it is usually least pain in the morning. She has noticed nodules in the joints of the fingers of her hands. A recent blood test shows:</p> <p>Haemoglobin 92 g/L White cell count $9.8 \times 10^9/L$ Platelets $250 \times 10^9/L$</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Rheumatoid arthritis B. Osteoarthritis C. Gout D. Pseudogout E. Multiple myeloma</p> <p>The first step is recognising that this is osteoarthritis. Pain in one joint that is worse towards the end of the day for a 6 month period are features of osteoarthritis. Hips are also a common joint affected by osteoarthritis.</p> <p>The nodules in her hand although not specified in the stem are likely to represent Bouchard's nodes or Heberden's nodes which are seen in osteoarthritis.</p> <p>Anaemia in this stem cannot be explained by choosing osteoarthritis except for the fact that it could be due to prolonged use of NSAIDS causing gastrointestinal bleeding. This is one reason many doctors would have picked rheumatoid arthritis as the answer as rheumatoid arthritis is associated with anaemia of chronic disease. It is estimated that 30-60% of people</p>



with rheumatoid arthritis are anaemic (either from anaemia of chronic disease or GI bleed related to nonsteroidal anti-inflammatory drug (NSAID) use. However, we must remember how rheumatoid arthritis presents. Usually more than one joint is involved in rheumatoid arthritis and the hands are almost always affected. With rheumatoid arthritis, the pain and stiffness is usually worst on waking, but gradually improves during the day. This is quite the opposite of osteoarthritis which is represented in this stem.

Osteoarthritis

Features to remember

- Monoarthritis
- Hip and knee are commonly affected
- Joint pain that is exacerbated by exercise and relieved by rest (sometimes gives a history of pain worsening at the end of the day)
- Bony deformity due to osteophytes
 - o In fingers this presents as swelling at the distal interphalangeal joints (Heberden's nodes) or swelling at the proximal interphalangeal joints (Bouchard's nodes)

Mnemonic for Heberden nodes and Bouchard's nodes

- *Heberden → distal interphalangeal joint (H-D) (High Definition)*
- *Bouchard → proximal interphalangeal joint (B-P) (Blue Picture)*

X ray shows loss of joint space, marginal osteophytes, bone cyst and subarticular sclerosis.

Mnemonic for X-ray features

- *L → Loss of joint space*
- *O → Osteophytes*
- *S → Subchondral cysts*
- *S → Subchondral sclerosis*

Management

- Exercise and physiotherapy
- Weight reduction
- Regular paracetamol
- Topical NSAIDs
- Oral NSAIDs
 - o *Note: Paracetamol and/or topical NSAIDs should be considered ahead of oral NSAIDs*
- Joint surgery as last option



SAMPLE



PAEDIATRICS

SAMPLE



1.	<p>A 7 month old baby is admitted with a 3 day history of coughing. He has a temperature of 38.5°C. On examination, there is marked subcostal recession and widespread wheeze is noted bilaterally. His respiratory rate is 60 breaths/minute. What is the SINGLE most appropriate initial management?</p> <p>A. Supportive care B. Oral prednisolone C. Intravenous hydrocortisone D. Intramuscular adrenaline E. Nebulised salbutamol</p> <p>The diagnosis here is bronchiolitis. Supportive care is the mainstay of treatment involving oxygen.</p> <p>Bronchiolitis</p> <ul style="list-style-type: none">- An acute infectious disease of the lower respiratory tract that occurs primarily in the very young, most commonly infants between 2 and 6 months old- Respiratory syncytial virus (RSV) is the pathogen in 75-80% of cases <p>It is a clinical diagnosis based upon:</p> <ul style="list-style-type: none">- Breathing difficulties- Cough- Coryzal symptoms (including mild fever)- Decreased feeding- Apnoeas in the very young- Wheeze or fine inspiratory crackles on auscultation <p>Management</p> <ul style="list-style-type: none">- Largely supportive involving humidified oxygen
2.	<p>A 2 year old girl previously well is brought to A&E by her mother with a history of vomiting and diarrhoea for the last 2 days. She is unable to keep any food or liquid down in the past day. What is the SINGLE most suitable indication for intravenous fluids administration?</p> <p>A. Capillary refill time > 4 seconds B. Heart rate > 90 beats/minute C. Respiratory rate > 25 breaths/minute D. Passing of watery stools more than eight times a day E. Current weight < 10 kg</p> <p>Normal capillary refill time is usually less than 2 seconds. Prolonged capillary refill time is a sign of clinical shock. Intravenous fluid should be started immediately.</p> <p>A 2 year old child can have a heart rate anywhere between 80 to 120 beats per minute and so option B is wrong.</p>



It is also normal to have a respiratory rate between 20 to 30 breaths per minute in a 2 year old child thus option C is wrong.

Passing large amount or increased frequency of watery stool is not a clinical sign of dehydration.

Weight has no role as an indication for IV fluids and has no relation as a clinical sign of dehydration.

	No clinically detectable dehydration	Clinical dehydration	Clinical shock
Symptoms (remote and face-to-face assessments)	Appears well	Red flag Appears to be unwell or deteriorating	
	Alert and responsive	Red flag Altered responsiveness (for example, irritable, lethargic)	Decreased level of consciousness
	Normal urine output	Decreased urine output	
	Skin colour unchanged	Skin colour unchanged	Pale or mottled skin
	Warm extremities	Warm extremities	Cold extremities
Signs (face-to-face assessments)	Alert and responsive	Red flag Altered responsiveness (for example, irritable, lethargic)	Decreased level of consciousness
	Skin colour unchanged	Skin colour unchanged	Pale or mottled skin
	Warm extremities	Warm extremities	Cold extremities
	Eyes not sunken	Red flag Sunken eyes	
	Moist mucous membranes (except after a drink)	Dry mucous membranes (except for 'mouth breather')	
	Normal heart rate	Red flag Tachycardia	Tachycardia
	Normal breathing pattern	Red flag Tachypnoea	Tachypnoea
	Normal peripheral pulses	Normal peripheral pulses	Weak peripheral pulses
	Normal capillary refill time	Normal capillary refill time	Prolonged capillary refill time



	<table><tr><td></td><td>Normal skin turgor</td><td>Red flag Reduced skin turgor</td><td></td></tr><tr><td></td><td>Normal blood pressure</td><td>Normal blood pressure</td><td>Hypotension (decompensated shock)</td></tr></table>		Normal skin turgor	Red flag Reduced skin turgor			Normal blood pressure	Normal blood pressure	Hypotension (decompensated shock)
	Normal skin turgor	Red flag Reduced skin turgor							
	Normal blood pressure	Normal blood pressure	Hypotension (decompensated shock)						
3.	<p>A 4 year old girl is taken by her mother to the emergency department and complains of pain during urination and feeling generally unwell. She has a temperature of 38.5°C. What is the SINGLE most appropriate initial action?</p> <p>A. Suprapubic aspiration B. Clean catch of urine C. Catheter for sample of urine D. Renal ultrasound E. DMSA scan</p> <p>The clinical features described are consistent with urinary tract infection for which a clean catch of urine is the next best action.</p> <p>Special arrangements may be needed for collecting a sample from a child. (Clean catch, catheter or suprapubic aspiration are methods used which reduce the risk of contamination)</p> <p>Routine investigations that are done in urinary tract infection are:</p> <ul style="list-style-type: none">- Dipstick analysis of urine - may treat as bacterial if there are positive results for nitrite and/or leukocytes- Urine microscopy - leukocytes indicate presence of infection- Urine culture								
4.	<p>An 18 month old boy has been brought to the emergency department by his mother because he has been refusing to move his left arm and crying more than usual for the past 24 hours. He has recently been looked after by his mother's new partner while she attended college. Assessment shows multiple bruises on his body and the medial aspect of his left upper arm. What is the SINGLE most appropriate next step?</p> <p>A. Admit under care of pediatrician B. Discharge with painkillers C. Start IV centrist one D. Follow up in paediatric outpatient department E. Follow up with GP</p> <p>The likely diagnosis here is a non-accidental injury. Bruising in unusual sites (eg medial aspect of upper arms or thighs) should prompt consideration of non accidental injury. The child needs to be admitted for further investigation and also to prevent further injury from the mother's partner.</p>								



	<p>Non accidental injury</p> <p>Presentation:</p> <ul style="list-style-type: none">- Delayed admission into hospital or clinic by carer- Child usually brought in by step-father or boyfriend- Bruising – of varying degrees, color variations (means long term abuse)- Fractures <p>Diagnosis:</p> <ul style="list-style-type: none">- Mostly clinical history <p>Treatment:</p> <ul style="list-style-type: none">- Admit to ward and manage pain- Refer to social services- Treat any other underlying medical conditions
5.	<p>A 4 year old boy is brought to clinic by his worried mother complaining that he is still unable to keep dry at night. There was no period where he managed to stay dry during the night. The mother wants to know if anything can be done to resolve this issue. He is dry during the day. His medical history is insignificant and there is no history of recurrent urinary tract infections. What is the SINGLE most appropriate management?</p> <p>A. Desmopressin B. Reassurance C. Behavioural therapy D. Enuresis alarm E. Referral to surgery</p> <p>Reassure the parents that many children younger than 5 years of age wet the bed, and this usually resolves without treatment → reassurance maybe all that is required.</p> <p>Definitions: Primary nocturnal enuresis refers to children that have never been dry for more than a 6-month period</p> <p>Secondary nocturnal enuresis refers to the re-emergence of bedwetting after a period of being dry for at least 6 months</p> <p>The management of bedwetting can be a little confusing as different sources and books would have slightly different answers. But the best place to take the answers from would be NICE CKS as these are NICE guidelines and PLAB questions would have to adhere by them.</p> <p>The points on NICE CKS can be summarized below: <i>Primary bedwetting (without daytime symptoms)</i> Younger than 5 → reassurance!</p>



	<p>Older than 5 years of age</p> <ul style="list-style-type: none">- If bedwetting is infrequent (less than 2x a week) → reassurance- If long-term treatment required → enuresis alarm (1st line) + reward system- If short-term control of bedwetting is required (e.g. sleep overs) → Desmopressin <p>If treatment has not responded to at least two complete courses of treatment with either an alarm or desmopressin → Refer to secondary care</p> <p>Primary bedwetting (with daytime symptoms)</p> <ul style="list-style-type: none">- Refer all children above 24 months with primary bedwetting and daytime symptoms to secondary care or an enuresis clinic for further investigations and assessment.
6.	<p>A 3 week old female infant has recently become jaundiced. Her mother has breastfed her since she was born. Test have ruled out other causes of jaundice and the diagnosis of breast milk jaundice is made. She is otherwise well. What is the SINGLE most appropriate management?</p> <p>A. Phototherapy B. Exchange transfusion C. Increase fluid intake D. Continue breastfeeding E. Stop breastfeeding completely</p> <p>Infants become jaundiced in the second week of life. The diagnosis and treatment is to stop the breast feeding (and give formula) for 24 hours. When bilirubin is checked again, it will have fallen significantly. The baby may then be safely breastfed. Thus some paediatricians would suggest interrupting breastfeeding for 24 hours (and give formula instead) as this is the most rapid way to reduce the bilirubin level. However, in most infants, interrupting breastfeeding is not necessary or advisable.</p> <p>In this question, interrupting breastfeeding was not given as an option. The best option in this scenario would be to continue breast feeding.</p>
7.	<p>A 2 week old male, term infant presents to the Emergency Department with a sudden onset of green, bilious vomiting for two hours and blood in diapers. Abdominal x-ray reveals dilatation of the stomach and in the proximal loops of the bowel. Barium enema indicates partial obstruction of the duodenum and malposition of the caecum. Which of the following is the SINGLE most likely diagnosis?</p> <p>A. Jejunal atresia B. Hypertrophic pyloric stenosis C. Malrotation and volvulus D. Acute appendicitis E. Intussusception</p>



	<p>When you see sudden onset of green, bilious vomiting and blood per rectum in neonates for PLAB 1, think of malrotation with volvulus. PLAB 1 may have abdominal x-ray result as “double bubble sign”. Pyloric stenosis in PLAB 1 would have projectile vomiting as a key feature and the age would be older than 3 weeks. Intussusception is uncommon in neonates and would most likely occur in infants 6 months or older. Note that it may be possible in PLAB 1 for them to show an x-ray for case stems so instead having a description of the result you may need to interpret the radiology yourself.</p> <p>Malrotation and volvulus</p> <p>Presentation:</p> <ul style="list-style-type: none">- Green, bilious vomiting- Blood per rectum- Sudden onset- Age: neonates <p>Diagnosis:</p> <ul style="list-style-type: none">- Abdominal x-ray- Barium enema <p>Treatment:</p> <ul style="list-style-type: none">- ABCDE protocol- Decompression with nasogastric tube- Referral to paediatric surgery for laparotomy and resection
8.	<p>A 3 year old boy attends clinic with a history of diarrhea on and off. The mother describes the stool as bulky, frothy and difficult to flush. He looks pale and wasted on examination. What is the SINGLE most likely investigation that would lead to a diagnosis?</p> <p>A. Sweat chloride test B. Anti-endomysial antibodies C. Liver function test D. Ultrasound abdomen E. Thyroid function test</p> <p>The diagnosis here is coeliac disease. Bulky, frothy and floating (difficult to flush) stools are a hint that he is having a malabsorption syndrome. He looks pale because he is anaemic.</p> <p>If you have answered A (Sweat chloride test) for cystic fibrosis. You are not completely wrong as cystic fibrosis can occur at that age as well and has symptoms of malabsorption too (foul-smelling bulky stool that "floats"). But the question writers are likely to give other hints like “repetitive cough over the last few months” if cystic fibrosis is the likely diagnosis. Also, given the two disease, coeliac is much more common compared to cystic fibrosis and thus the most likely investigation that would lead to a diagnosis is anti-endomysial antibodies. Prevalence of coeliac is 1 in 100 people in the UK while the prevalence of cystic fibrosis is 1 in 2500.</p>



	<p>Coeliac disease: an example of malabsorption</p> <p>Associated with exposure to gluten, rye, wheat, barley</p> <p>Malabsorption typically presents with diarrhoea, failure to thrive and anaemia</p> <p>As subclinical/latent forms exist, investigate any unexplained anaemia, fatigue, 'irritable bowel' symptoms, and diarrhoea</p> <p>Patients mostly present between 6 months to 2 years of age but can occur at any age. There may be a deceleration on the growth chart after introduction to gluten at weaning (4–6 months).</p> <p>Diagnosis</p> <p><u>Immunology:</u></p> <ul style="list-style-type: none">- raised IgA anti-tissue transglutaminase (IgAtTG), anti-gliadin (IgA-AGA), and endomysial antibodies (EMA) <p><u>Biopsy:</u></p> <p>Confirm by finding villous atrophy on small bowel biopsy (gold standard)</p>
9.	<p>A 4 week old female infant presents to the Emergency Department with vomiting after every feed. The mother describes the vomiting as projectile and non-bilious. The child is also constipated. On examination, there is a right sided olive-sized abdominal mass on palpation. What is the SINGLE most appropriate next step of action?</p> <p>A. Abdominal ultrasound B. Abdominal x-ray C. Intravenous fluids D. Serum potassium level E. Nasogastric tube insertion</p> <p>This is a classic presentation of pyloric stenosis on PLAB 1. As the child is vomiting profusely, there will be electrolyte imbalance. Hypokalaemia may be present and therefore need to be corrected immediately.</p> <p>In reality, one would take blood for serum potassium levels and arrange an abdominal ultrasound while waiting for the serum potassium results. However, the exam writers want you to think which is the most important given the stem.</p> <p>Pay attention to the final line of the question. If the question is asking for the NEXT STEP of action, serum potassium levels would be appropriate. If the question is asking for the NEXT STEP TO DIAGNOSE the condition, then abdominal ultrasound would be the answer.</p> <p>Intravenous fluid should follow after taking bloods.</p>



	<p>Presentation:</p> <ul style="list-style-type: none">- Projectile non-bilious vomiting- Age group: 3-8 weeks- Olive sized abdominal mass- The child will feel hungry and want to feed despite constant vomiting <p>Diagnosis:</p> <ul style="list-style-type: none">- Abdominal ultrasound <p>Treatment:</p> <ul style="list-style-type: none">- Metabolic alkalosis – correct electrolyte imbalance + hydration- Then referral to paediatric surgery (pyloromyotomy) + nasogastric tube
10.	<p>A 4 year old boy, who recently immigrated from Kenya with his parents, presents to clinic with intermittent watery diarrhea, foul-smelling flatulence, nausea, and abdominal pain. His weight is less than the fifth percentile for his age. On examination, he has a fever of 38oC and is dehydrated. Which of the following is the most likely to confirm his diagnosis?</p> <p>A. Abdominal ultrasound B. Complete blood count C. Liver function test D. ESR E. Stool microscopy for ova and parasites</p> <p>Giardiasis</p> <p>Presentation:</p> <ul style="list-style-type: none">- Watery diarrhea, foul-smelling flatulence- Nausea, belching- Abdominal pain- +/- Fever <p>Diagnosis:</p> <ul style="list-style-type: none">- Stool microscopy - first line- Stool PCR / ELISA <p>Treatment:</p> <ul style="list-style-type: none">- Hygiene- Metronidazole



- 11.** An infant soon after birth developed difficulty in breathing with intercostal recession and nasal flaring. He is afebrile. On examination, there is diminished breath sounds. On examining the mother's notes, there was a history of spontaneous rupture of membranes 48 hours before delivery of baby. The mother was 36 weeks gestation when the baby was delivered. What is the SINGLE most appropriate initial investigation?

- A. Blood culture
- B. Chest X-ray**
- C. Stool culture
- D. Sputum culture
- E. Maternal high vaginal swab

Infant respiratory distress syndrome secondary to surfactant deficiency which is the cause of respiratory distress. There could be potential sepsis due to prolonged rupture of membranes which worsens the respiratory distress however this is unclear.

One must remember that prolonged rupture of membrane is not a risk factor for IRDS. In fact, the incidence of IRDS decreases with prolonged rupture of membranes. Note however, PROM occurring before 37 weeks (PPROM) is one of the leading causes of preterm birth. 30-35% of all preterm births are caused by PPRM. This puts the fetus at risk for the many complications associated with prematurity such as respiratory distress.

At this stage, a chest x-ray should be done to rule out other causes of respiratory distress.

Infant Respiratory Distress Syndrome

- Infant respiratory distress syndrome (IRDS) is caused by the inadequate production of surfactant in the lungs. It is usually seen in premature infants where they have immature lungs.
- It affects approximately one half of infants born at 28-32 weeks of gestation. It rarely occurs at term.

Risk factors:

- Premature delivery
- Infants delivered via caesarean section without maternal labour
- Maternal diabetes

Presentation

- Respiratory distress very soon after birth:
 - o Tachypnoea
 - o Expiratory grunting
 - o Subcostal and intercostal retractions
 - o Diminished breath sounds
 - o Cyanosis
 - o Nasal flaring



12.	<p>A 7 year old child presented with chronic cough and is also found to be jaundiced on examination. What is the SINGLE most likely diagnosis?</p> <p>A. Congenital diaphragmatic hernia B. Congenital cystic adenomatoid malformation C. Bronchiolitis D. Respiratory distress syndrome E. Alpha 1 antitrypsin deficiency</p> <p>Jaundiced is a hint towards liver dysfunction. Together with respiratory symptoms are suggestive of Alpha 1 antitrypsin deficiency.</p> <p>α-antitrypsin (α-AT) deficiency</p> <p>This is an inherited condition that is associated with the early development of emphysema.</p>
13.	<p>A 6 year old boy presents to clinic with obesity. He has a history of failure to thrive as an infant. He is now behind in school, has difficulty interacting with friends, and feeds constantly. His mother says he cannot stop eating. What is the SINGLE most likely diagnosis?</p> <p>A. Cushing's disease B. Congenital hypothyroidism C. Primary hypoparathyroidism D. Prader Willi syndrome E. Down's syndrome</p> <p>Prader Willi syndrome is a result of chromosomal abnormality in chromosome 15 on the paternal side. The key clue is behavioral problems and uncontrolled feeding habits. There may sometimes be clues in the stem stating the child has "blue eyes and blonde hair".</p> <p>Presentation:</p> <ul style="list-style-type: none">- Male with blonde hair, blue eyes- Behavioral problems- If uncontrolled feeding + obesity, the boy usually < 6 years old- Developmental delay <p>Diagnosis:</p> <ul style="list-style-type: none">- Chromosomal analysis: abnormality of paternal chromosome 15- Mostly clinical diagnosis <p>Treatment:</p> <ul style="list-style-type: none">- Referral to paediatric psychiatry for behavioral problems and developmental delay



14.	<p>A 2 year old boy fell off his tricycle and hurt his arm. He got up and was about to start crying but before there was any sound, he went pale, and unconscious. He recovered after 2 minutes but remained pale. His colour came back after a few minutes. His mother was concerned at that time that he was going to die. She is very worried and mentions that he had a similar episode 2 months ago after falling down some steps. What is the SINGLE most appropriate next step?</p> <p>A. CT head B. Electroencephalogram (EEG) C. Full blood count (FBC) D. Reassure E. Skeletal survey</p> <p>The diagnosis here is breath-holding spells</p> <p>This usually occurs in young children when they are upset and can be precipitated by trauma or when separated from the parents.</p> <p>Basically anything which may upset a child including injury from falling down</p> <p>These children stop breathing for some time, they may turn blue or have little jerks of the limbs.</p> <p>After a period of time they spontaneously start breathing. They become completely fine after an hour.</p> <p>Treatment is not necessary. Usually just reassure parents</p>
15.	<p>A 6 month old boy is admitted with persistent irritability. He is lethargic and is not feeding well. He has a temperature of 38.2°C, a capillary refill time of 2 seconds and a respiratory rate of 34 breaths/minute. Urine reveals leukocytes on a dipstick. What is the SINGLE investigation most likely to lead to diagnosis?</p> <p>A. Blood culture B. Erythrocyte sedimentation rate (ESR) C. Chest X-ray D. Urine culture and sensitivity E. CSF analysis</p> <p>Dipstick test already shows leucocytes. A urine culture will confirm a urinary tract infection.</p>



16.	<p>A 15 month old male infant arrives to clinic for his measles, mumps, rubella (MMR) vaccine. On examination, he has a temperature of 37.5°C and has acute otitis media. There is also a family history of egg allergy. What is the SINGLE most appropriate action?</p> <p>A. Do not give the vaccine B. Give half the vaccine dose C. Give paracetamol followed by vaccine D. Give paracetamol with future doses of vaccines E. Defer vaccine until the child is well</p> <p>For PLAB 1, usually the paediatric immunization case stem would be similar to the one above. Always choose option E for this type of scenario. Family histories most often do not play a role in opting out of a vaccination schedule.</p>
17.	<p>A 3 year old male presents to the Emergency Department with a left-sided irreducible firm swelling near the groin. The swelling would descend when the child cries. On examination, both testicles are palpable in the scrotum. What is the SINGLE most appropriate management?</p> <p>A. Reassurance B. Emergency herniotomy C. Elective herniotomy D. Emergency herniotomy and orchidopexy E. Elective herniotomy and orchidopexy</p> <p>The diagnosis is an inguinal hernia. There are no clues in the stem of strangulation; therefore, the herniotomy can be done electively. Herniotomy is usually performed for children under 10 years. Herniorrhaphy is done in adults.</p>
18.	<p>A 4 year old girl presents to the emergency center with difficulty breathing and stridor. She has a temperature of 39.1°C. The parents state that the child had been in her usual state of health but awoke with a hoarse voice, and difficulty swallowing. They tell you that she has not been immunised because they are afraid of the side effects of the vaccination. What is the SINGLE most likely diagnosis?</p> <p>A. Cystic fibrosis B. Acute Epiglottitis C. Immunodeficiency D. Inhaled foreign body E. Recurrent aspiration</p> <p>The clincher here is drooling of saliva. If you find any questions with a child with drooling of saliva. It is likely that this is acute epiglottitis, Summon the most experienced anaesthetist to intubate before obstruction occurs.</p>



	<p>Acute epiglottitis</p> <ul style="list-style-type: none">- Now rare due to the introduction of Hib vaccine. However, it is still a serious infection. Prompt recognition and urgent treatment is essential- Caused by Haemophilus influenzae type B <p>Features</p> <ul style="list-style-type: none">- Rapid onset- High temperature- Stridor- Drooling of saliva- Difficulty speaking- Muffling or changes in the voice
19.	<p>A 3 year old boy is brought to A&E after having a generalized tonic-clonic seizure that lasted approximately 5 minutes. The parents say that he was previously well but started developing symptoms of a cold earlier in the morning. He is noted to have a fever of 39°C. What is the SINGLE most likely diagnosis?</p> <p>A. Infant spasms B. Absence seizures C. Epilepsy D. Partial complex seizure E. Febrile convulsion</p> <p>The diagnosis here is quite clear.</p> <p>Febrile seizures</p> <p>6 months to 6 years of age; peak at 14-18 months</p> <p>Usually with a positive family history</p> <p>Temperature usually increases rapidly to > 39°C</p> <p>Typical: generalized tonic-clonic seizures</p> <p>Must determine cause of fever and rule out meningitis</p> <p>Treatment</p> <p>Control the fever</p>



20.	<p>A 6 week old formula fed baby boy is found at under the healthy child programme to be deeply jaundiced. His weight gain is poor. His stools are pale and urine colour is dark. What is the SINGLE most likely diagnosis?</p> <p>A. Galactosaemia B. Biliary atresia C. Glucose-6-phosphate dehydrogenase (G6PD) deficiency D. Rhesus incompatibility E. Congenital viral infection</p> <p>The signs and symptoms here along with prolonged jaundice is suggestive of biliary atresia. Biliary atresia causes obstructive picture where stools are pale and urine becomes dark which is exactly what is seen here.</p> <p>Galactosaemia may cause prolonged jaundice too but does not present as an obstructive picture with stools being pale and dark urine.</p> <p>Glucose-6-phosphate dehydrogenase (G6PD) deficiency like the other haemolytic diseases has an onset of jaundice usually less than 24 hours</p> <p>Haemolytic disease of the newborn (rhesus) and congenital viral infection usually has an early onset of jaundice and is not prolonged.</p> <p>Biliary Atresia</p> <p>Presentation</p> <ul style="list-style-type: none">- Jaundice with pale stools and dark urine- Usually would present in 3-4 weeks of life- Splenomegaly is not usually a feature unless presentation is late- Failure to thrive is a result of poor absorption <p>Diagnosis:</p> <ul style="list-style-type: none">- Abdominal ultrasound (initial investigation)- Cholangiogram (definitive diagnosis) <p>Treatment:</p> <ul style="list-style-type: none">- Kasai procedure = hepatoportoenterostomy
21.	<p>A 2 year old has atrophy of the buttocks. He has often has bloating of his abdomen with frequent offensive, smelly stool that are difficult to flush. He looks pale on examination. What is the SINGLE most appropriate initial investigation?</p> <p>A. Sweat chloride test B. Anti-endomysial antibodies C. Upper gastrointestinal endoscopy D. Colonoscopy E. Stool culture</p>



	<p>The diagnosis here is coeliac disease. Smelly, difficult to flush stools are a hint that he is having a malabsorption syndrome. He looks pale because he is anaemic. Immunology test like anti-endomysial antibodies are appropriate.</p> <p>If you have answered A (Sweat chloride test) for cystic fibrosis. You are not completely wrong as cystic fibrosis can occur at that age as well and has symptoms of malabsorption too (foul-smelling bulky stool that "floats"). But the question writers are likely to give other hints like "repetitive cough over the last few months" if cystic fibrosis is the likely diagnosis. Also, given the two disease, coeliac is much more common compared to cystic fibrosis and thus the most likely investigation that would lead to a diagnosis is anti-endomysial antibodies. Prevalence of coeliac is 1 in 100 people in the UK while the prevalence of cystic fibrosis is 1 in 2500.</p> <p>Coeliac disease: an example of malabsorption Associated with exposure to gluten, rye, wheat, barley</p> <p>Malabsorption typically presents with diarrhoea, failure to thrive and anaemia</p> <p>As subclinical/latent forms exist, investigate any unexplained anaemia, fatigue, 'irritable bowel' symptoms, and diarrhoea</p> <p>Patients mostly present between 6 months to 2 years of age but can occur at any age. There may be a deceleration on the growth chart after introduction to gluten at weaning (4–6 months).</p> <p>Diagnosis <u>Immunology:</u></p> <ul style="list-style-type: none">• raised IgA anti-tissue transglutaminase (IgAtTG), anti-gliadin (IgA-AGA), and endomysial antibodies (EMA)
22.	<p>A 4 week old male infant presents to the Accident & Emergency Department with vomiting after every feed. The mother describes the vomiting as projectile and non-bilious in nature. The child is also constipated and has not passed stool or flatus for 3 days. On examination, there is a right sided olive-sized abdominal mass on palpation. What is the SINGLE most appropriate next step of action to diagnose the condition?</p> <p>A. Abdominal ultrasound B. Abdominal X-ray C. Intravenous fluids D. Serum potassium level E. Nasogastric tube insertion</p> <p>Pyloric Stenosis:</p> <p><u>Presentation:</u> Projectile non-bilious vomiting</p>



Age group: 3-8 weeks
Olive sized abdominal mass
The child will feel hungry and want to feed despite constant vomiting

Diagnosis:

Abdominal ultrasound

Treatment:

Metabolic alkalosis – correct electrolyte imbalance + dehydration
Then referral to paediatric surgery (pyloromyotomy) + nasogastric tube

Occasionally, the exam may show an abdominal X-ray and ask you for the diagnosis. This is typically what an abdominal X-ray of an infant with pyloric stenosis will look like:



23. A 3 month old term female infant presents to clinic with frequent episodes of non-projectile vomiting after feeds. The mother complains it is difficult to breastfeed her child. On examination, the infant is irritable and she is below centiles on the growth chart in terms of weight. What is the SINGLE most likely diagnosis?

- A. Pyloric stenosis
- B. Duodenal atresia
- C. Hypothyroidism
- D. Gastro-oesophageal reflux disease**
- E. Tracheo-oesophageal fistula

This is a diagnosis of gastro-oesophageal reflux disease (GORD). This is one of the most common causes to vomiting in infants.

While GORD can occur at any age, in paediatrics for PLAB 1 the case stem would usually have an infant < 1 year old.



	<p>Gastro-oesophageal reflux disease in Paediatrics</p> <p>Presentation:</p> <ul style="list-style-type: none">- Age group for PLAB 1: < 1 year- Excessive and frequent episodes of regurgitation/vomiting after feeds- Difficult to feed- Failure to thrive- Irritable and crying <p>Diagnosis:</p> <ul style="list-style-type: none">- Upper GI study with contrast as per NICE protocol only (do not offer routinely) - first line- Upper GI endoscopy with biopsy as per NICE protocol only (do not offer routinely) <p>Treatment:</p> <ul style="list-style-type: none">- If breast-feeding: Breast-feeding assessment- If formula-fed: take feeding history → increase feeding frequency and reduce amount per feed → thickened formula- Only offer proton pump inhibitors (PPIs) or H2 receptor antagonists (H2RAs) and consider enteral feeding only if there is no improvement to the above
24.	<p>A 4 month old, healthy female infant presents to clinic for her routine immunizations of DTP, Hib, polio, MenB, and pneumococcal vaccines. At her 3 month immunization, she cried and was irritable for 3 hours followed by a fever that lasted for 2 days. Which of the following is the SINGLE most appropriate action now?</p> <p>A. Do not give the vaccines B. Give half the vaccine doses C. Give paracetamol followed by vaccines D. Proceed with standard immunization schedule E. Defer vaccines for 2 weeks</p> <p>For PLAB 1, usually the paediatric immunization case stem would be similar to the one above. Know the immunization schedule and the protocol for giving it.</p> <p>Proceed with immunization and reassure parents that a slight fever post vaccines is normal, can be relieved with paracetamol. If it persists for more than 1 week then seek expert help.</p>



- 25.** A 3 year old child is admitted to hospital for a very high fever. He is discovered to be below the 25th percentile for weight. After a week in hospital, his weight improves from 10 kg to 11kg upon discharge. A week later, he is readmitted with pneumonia. His weight upon admission is back to 10kg and improved to 11.5kg at the end of 10 days upon discharge. What is the SINGLE most likely cause of his fluctuating weight?

- A. Leukaemia
- B. Cystic fibrosis
- C. Non-accidental injury**
- D. HIV/AIDS infection
- E. Pulmonary fibrosis

This is a seemingly tough question which in actuality, is quite simple. The normal weight for a 3 year old male child is around 14kg. We can see from admission that his weight is way below the average for his age group. The fact that his weight improved in hospital and declined upon discharge is highly suspicious of negligence. Another clincher to this fact is the frequent hospital admissions.

We cannot say this child has leukaemia or cystic fibrosis (although it is possible) because there is no evidence in the stem to suggest this. Thus, the best answer is non-accidental injury.

In certain questions like this one, there is insufficient information to properly know for certain which is the correct answer. This type of questions may reflect those that appear in the exam. Options C and B are still the top choices. Make one of these your choices and move on to the next question. Do not overthink this as it could waste valuable time in the exam.

Non-accidental injury/neglect:

- Frequent attendance or unusual patterns of attendance to health care services, including frequent injury.
- Failure to access medical care appropriately (including non-attendance for routine immunisations, delay in presentation).
- Unsuitable explanations. Explanations which are inconsistent over time or between people, or which are not consistent with the presenting features.
- There is evidence of failure to thrive.
- Parents or carers do not administer prescribed medication.
- Inexplicably poor response to treatment.
- Reporting of new symptoms as soon as previous ones resolve.



26.	<p>Parents of a 3 month old baby are worried about cot death. What is the SINGLE most appropriate advice to give in regards to sleeping position and bedding?</p> <p>A. Place baby in a prone position to sleep B. Place baby on his back to sleep C. Place baby on his side to sleep D. Use soft bedding E. Use pillows</p> <p>Cot death is more properly known as sudden infant death syndrome (SIDS). It is the term used to describe the sudden death of a child under the age of 1 year in its sleep where no cause or reason can be found. All other possible causes of death must be excluded for this diagnosis to be made.</p> <p>Sleeping position is particularly important. Prone sleeping is a major, modifiable risk factor. Placing babies on their backs to sleep is advice which should be reinforced by professionals. Reassure parents that the risk of aspiration is not increased by sleeping in this position and a number of studies have confirmed this.</p> <p>Soft bedding increases the risk of SIDS. Pillows should not be used.</p>
27.	<p>A 4 year old is brought to the emergency department by ambulance. His mother reports that he has been unwell with a sore throat. He is sitting on his mother's knee and is tolerating an oxygen mask but looks unwell. He has constant noisy breathing and he is drooling saliva. He has a temperature of 39.0°C. What is the SINGLE most likely diagnosis?</p> <p>A. Acute asthma B. Bronchiolitis C. Croup D. Epiglottitis E. Tonsillitis</p> <p>The given case is classic picture of acute epiglottitis.</p> <p>The clincher here is drooling of saliva. If you find any questions with a child with drooling of saliva. It is likely that this is acute epiglottitis, Summon the most experienced anaesthetist to intubate before obstruction occurs.</p> <p>Acute epiglottitis</p> <ul style="list-style-type: none">- Now rare due to the introduction of Hib vaccine. However, it is still a serious infection. Prompt recognition and urgent treatment is essential- Caused by Haemophilus influenzae type B <p>Features</p> <ul style="list-style-type: none">- Rapid onset- High temperature- Stridor



	<ul style="list-style-type: none">- Drooling of saliva- Difficulty speaking- Muffling or changes in the voice
28.	<p>A 4 month old girl presents with jaundice and failure to thrive. The jaundice was first noticed in the first few weeks of life but her parents were not able to seek medical care. She has pale stools and dark urine. Her spleen is palpable and her liver is enlarged and hard. What is the SINGLE most likely diagnosis?</p> <p>A. Biliary atresia B. Glucose-6-phosphate dehydrogenase (G6PD) deficiency C. Hepatitis B D. Spherocytosis E. Rh incompatibility</p> <p>Jaundice in newborns is an important topic within the paediatric section for PLAB 1.</p> <p>The signs and symptoms here along with prolonged jaundice is suggestive of biliary atresia. Biliary atresia causes obstructive picture where stools are pale and urine becomes dark which is exactly what is seen here.</p> <p>Failure to thrive is a result of poor absorption of long-chain fats.</p> <p>The spleen becomes palpable after the 3rd or 4th week in biliary atresia. The liver may become hard and enlarged as well.</p> <p>Kasai procedure (hepatoportoenterostomy) has a good chance of restoring flow of bile to bowel but that is only if the procedure is done early. Late presentations like this one (e.g. more than 100 days), are unlikely to have a successful Kasai procedure due to advanced liver damage and cirrhosis. This baby would likely need a liver transplant in the first year of life.</p> <p>Biliary Atresia</p> <p>Presentation:</p> <ul style="list-style-type: none">- Jaundice with pale stools and dark urine- Usually would present in 3-4 weeks of life- Splenomegaly is not usually a feature unless presentation is late- Failure to thrive is a result of poor absorption <p>Diagnosis:</p> <ul style="list-style-type: none">- Abdominal ultrasound (initial investigation)



	<ul style="list-style-type: none">- Cholangiogram (definitive diagnosis) <p>Treatment:</p> <ul style="list-style-type: none">- Kasai procedure = hepatoportoenterostomy
29.	<p>A 2 year old boy presents to the Emergency Department with bruising and generalised petechiae that is more prominent over his legs bilaterally. The mother states the child recovered from the flu 2 weeks ago. On examination, there was no hepatosplenomegaly, no lymph node enlargement. Platelet count is 15 000/μL. What is the SINGLE most likely diagnosis?</p> <p>A. Von Willebrand disease B. Acute lymphoblastic leukaemia C. Idiopathic thrombocytopenic purpura D. Thrombotic thrombocytopenic purpura E. Aplastic anaemia</p> <p>This is a diagnosis of idiopathic thrombocytopenic purpura (ITP). This is a common PLAB 1 topic under the haematology component. Main clues in the case stem to ITP: previous viral infection, or in younger children previous immunization along with low platelets. Also, the petechiae would be mainly in the legs and on occasion on the arms. Otherwise, the child feels well and is active.</p> <p>Idiopathic thrombocytopenic purpura</p> <p>Presentation:</p> <ul style="list-style-type: none">- Follows viral infection or immunisation- The most common presentation is petechiae or bruising. Petechiae mainly in arms and legs - sudden onset- Up to a quarter present with nosebleeds- Haematuria and gastrointestinal bleeds are less common.- Older girls may have menorrhagia- Otherwise the patient is well and physical examination is normal <p>Laboratory diagnosis</p> <ul style="list-style-type: none">- Isolated thrombocytopenia; blood count otherwise normal <p>Management:</p> <ul style="list-style-type: none">- Prednisolone- IV immunoglobulin- Emergency platelet transfusion<ul style="list-style-type: none">o Only in life threatening haemorrhage. (usually platelet less than $20 \times 10^9/L$)



30.	<p>A 6 week old baby is admitted with persistent vomiting and failure to gain weight. Her mother describes the vomiting as projectile and non-bilious. On examination, there is a right sided olive-sized abdominal mass on palpation. Bloods show the following:</p> <p>Na+ 138 mmol/l K+ 3.3 mmol/l Cl- 83 mmol/l HCO₃- 28 mmol/l</p> <p>What is the SINGLE most appropriate diagnostic test?</p> <p>A. Abdominal ultrasound B. Abdominal x-ray C. CT abdomen D. Tissue transglutaminase (TTG) antibodies (IgA) E. Jejunal biopsy</p> <p>Bloods show a hypochloraemic, hypokalaemic alkalosis which points towards the diagnosis of pyloric stenosis. This is diagnosed using an abdominal ultrasound.</p> <p>Presentation:</p> <ul style="list-style-type: none">- Projectile non-bilious vomiting- Age group: 3-8 weeks- Olive sized abdominal mass- The child will feel hungry and want to feed despite constant vomiting <p>Diagnosis:</p> <ul style="list-style-type: none">- Abdominal ultrasound <p>Treatment:</p> <ul style="list-style-type: none">- Metabolic alkalosis – correct electrolyte imbalance + hydration- Then referral to paediatric surgery (pyloromyotomy) + nasogastric tube
31.	<p>An 18 month old female child is able to walk up steps, plays well with others in day care, can build blocks, and able to hold crayons scribbling on paper. Her mother is concerned because despite her daughter of having a vocabulary of more than 10 words, she is not able to speak in sentences nor is she able to run. What is the SINGLE best management strategy?</p> <p>A. Arrange hearing test B. Assess development milestones C. Reassurance D. Refer to speech therapist E. MRI brain</p> <p>For PLAB 1 it is important to memorize the important developmental milestones. The questions that come up for development are similar to the one above. A scenario is presented where the mom is concerned and you would be told to give the best</p>



	<p>advice/management. You must answer accordingly depending on the scenario. This child is on par with her developmental milestones. While running and speaking in sentences start at 18 months, the child has up till at least 2 years old to progress to that stage. If she still cannot perform these two tasks at 3-4 years old, then we would need to re-assess.</p> <p>At 18 months:</p> <ul style="list-style-type: none">- Should speak at least 6 words- Able to walk steps, walk independently- Scribbles, names objects, builds blocks- Socially interactive <p>At 1.5–2 years:</p> <ul style="list-style-type: none">- Kicks/throws a ball- Runs- 2-word sentences- Follows a 2-step command- Stacks 5–6 blocks
32.	<p>A mother who delivered a term infant 8 days ago is now diagnosed with varicella zoster. Her infant is currently afebrile, feeding well, passing stool and urinating without difficulty. Which of the following is the SINGLE most appropriate step in management?</p> <p>A. Isolate the infant from the mother B. Hospitalize the infant in the isolation ward C. Administer aciclovir to the infant D. Administer varicella-zoster immunoglobulin to the infant E. Advise the mother to continue regular well-baby care for the infant</p> <p>For PLAB 1, know the common vaccination guidelines for children pertaining to varicella and tetanus. This is a common case stem for PLAB 1.</p> <p>Varicella zoster exposure in neonates</p> <p>Presentation:</p> <ul style="list-style-type: none">- Mother contracts chicken pox either during pregnancy or post delivery <p>Diagnosis:</p> <ul style="list-style-type: none">- N/A <p>Treatment:</p> <ul style="list-style-type: none">- According to NHS guidelines, if the mother's onset of rash is >7 days before delivery or >7 days post delivery, varicella zoster immunoglobulin (VZIG) and isolation is not necessary for the neonate; just observation



33. A neonate's chest X-ray shows a double bubble sign. He has low set ears and a flat occiput. What is the SINGLE most likely diagnosis?

A. Down's syndrome

- B. Fragile X syndrome
- C. Turner's syndrome
- D. DiGeorge syndrome
- E. Edward's syndrome

Down syndrome has many features. Duodenal atresia is one of them that you must not forget. Double bubble sign indicates duodenal atresia.

For the purpose of PLAB, link these 3 terms closely:

Double bubble sign → Duodenal atresia → Down's syndrome

It is easy to remember as the all start with the letter "D".

Down's Syndrome

Clinical features

- face: upslanting palpebral fissures, epicanthal folds, protruding tongue, small ears, round/flat face
- flat occiput
- single palmar crease, pronounced 'sandal gap' between big and first toe
- congenital heart defects
- duodenal atresia
- Hirschsprung's disease

Cardiac complications

- atrioventricular septal canal defects
- ventricular septal defects

Later complications

- subfertility
- learning difficulties
- short stature
- acute lymphoblastic leukaemia
- Alzheimer's

34. An infant started to have jaundice when he was 2 days old which resolved itself towards day 9. There is an increase in serum bilirubin. What is the SINGLE most likely diagnosis?

- A. Galactosaemia
- B. Biliary atresia
- C. Prolonged jaundice
- D. Hypothyroidism
- E. Physiological jaundice**



	<p>Neonatal Jaundice</p> <p><u>Physiological jaundice:</u></p> <ul style="list-style-type: none">- This results from increased erythrocyte breakdown and immature liver function.- It presents at 2 or 3 days old, begins to disappear towards the end of the first week and has resolved by day 10.- The bilirubin level does not usually rise above 200 $\mu\text{mol/L}$ and the baby remains well. <p><u>Early neonatal jaundice (onset less than 24 hours):</u></p> <ul style="list-style-type: none">- Haemolytic disease: eg, haemolytic disease of the newborn (rhesus), ABO incompatibility, glucose-6-phosphate dehydrogenase deficiency, spherocytosis.- Infection: congenital (eg, toxoplasmosis, rubella, cytomegalovirus (CMV), herpes simplex, syphilis) or postnatal infection.- Crigler-Najjar syndrome or Dubin-Johnson syndrome.- Gilbert's syndrome. <p><u>Prolonged jaundice (jaundice lasting for longer than 14 days in term infants and 21 days in preterm infants):</u></p> <ul style="list-style-type: none">- Hypothyroidism, hypopituitarism.- Galactosaemia- Breast milk jaundice: the baby is well and the jaundice usually resolves by six weeks but occasionally continues for up to four months.- Gastrointestinal (GI): biliary atresia, neonatal hepatitis.
35.	<p>A young anxious mother of a 1 year old boy comes to you requesting a test for cystic fibrosis as her brother died from cystic fibrosis. What is the SINGLE most appropriate investigation?</p> <p>A. Sweat test B. Heel prick test C. Breath test D. Chest X-- ray E. Genetic testing of parents</p> <p>Sweat testing confirms the diagnosis and is 98% sensitive. Chloride concentration >60 mmol/L with sodium concentration lower than that of chloride on two separate occasions.</p>
36.	<p>A 12 month old male infant presents to clinic because his mother is concerned that the child cannot sit on his own, crawling but not standing with support, unable to pick up small items, and is not socially interactive with his older sibling. What is the SINGLE best management?</p> <p>A. Arrange hearing test B. Assess developmental milestones C. Reassure D. MRI brain E. Referral to physiotherapist</p>



	<p>For PLAB 1 it is important to memorize the development milestones. The questions that come up for development are similar to the one above. A scenario is presented where the mom is concerned and you would be told to give the best advice/management. You must answer accordingly depending on the scenario. This child is clearly showing indications of developmental delay and therefore requires assessment.</p> <p>Infants are usually able to sit without support at 7-8 months. At 12 months if they are unable to do this, we should assess and refer.</p> <p>At 12 months, he should be able to walk with support.</p>
37.	<p>An 8 year old child is brought into A&E with a fractured leg. The parents are unable to explain how the leg fractured. X-rays reveal several other fractures in various stages of healing. The parents cannot explain what might have caused them. On examination, the child has a blue sclerae and difficulty hearing. What is the SINGLE most likely diagnosis?</p> <p>A. Osteogenesis imperfecta B. Non accidental injury C. Haemophilia D. Achondrogenesis E. Wilson's disease</p> <p>There is frequently a history of multiple bony fractures with no history of trauma.</p> <p>Scenes like this occur may occur which may lead you to think of non accidental injuries (e.g. child abuse). But in this case, the cause of the fractures is not child abuse. It is osteogenesis imperfecta (OI). Osteogenesis imperfecta is an inherited disorder of type I collagen that results in fragile, low density bones. The bones break easily often from little or no apparent cause. A person with osteogenesis imperfecta may sustain just a few or as many as several hundred fractures in a lifetime.</p> <p>PLAB may give a scenario like the above but they will have to give some other sign that it is not a non accidental injury. In this case, they gave the sign of blue sclerae and hearing loss which is found in osteogenesis imperfecta.</p> <p>There is frequently a history of multiple bony fractures with no history of trauma.</p> <p>Scenes like this occur may occur which may lead you to think of non accidental injuries (e.g. child abuse). But in this case, the cause of the fractures is not child abuse. It is osteogenesis imperfecta (OI). Osteogenesis imperfecta is an inherited disorder of type I collagen that results in fragile, low density bones. The bones break easily often from little or no apparent cause. A person with osteogenesis imperfecta may sustain just a few or as many as several hundred fractures in a lifetime.</p>



	<p>PLAB may give a scenario like the above but they will have to give some other sign that it is not a non accidental injury. In this case, they gave the sign of blue sclerae and hearing loss which is found in osteogenesis imperfecta.</p>
38.	<p>A 3 year old girl ingested 10 capsules from her grandmother's medication bottle thinking it was candy. By the time the child is in the Emergency Department, she is drowsy and lethargic. Paramedics noted myoclonic twitching. ECG reveals tachycardia and widened QRS. Potassium is elevated. What is the SINGLE most likely medication did the child ingest?</p> <p>A. Tricyclic antidepressants B. Acetaminophen C. Thyroxine D. Amiodarone E. Nifedipine</p> <p>This is a diagnosis of tricyclic antidepressant (TCA) overdose. This topic in PLAB 1 overlaps with toxicity and emergency medicine. This is a typical PLAB 1 stem: there is a child that accidentally ingests an unknown bottle of medications. For TCA overdose, look for widened QRS, peaked T waves, hyperkalemia as main clues. Note that in young children (</p> <p>Tricyclic antidepressant overdose in Paediatrics Presentation:</p> <ul style="list-style-type: none">- Child ingesting an unknown bottle of medication- Lethargy, drowsy- +/- Coma or seizure- ECG - widened QRS, peaked T waves (indications of hyperkalemia) <p>Diagnosis:</p> <ul style="list-style-type: none">- Urea, electrolytes, toxicology screen- ECG- Arterial blood gas <p>Treatment:</p> <ul style="list-style-type: none">- ABCDE protocol- If within 1 hr of ingestion and >4mg/kg - activated charcoal- Sodium bicarbonate- Correct electrolytes if necessary
39.	<p>A 2 year old boy is brought to A&E by his mom with a history of severe diarrhoea and vomiting for the last 4 days. He has been unable to keep anything down for the last couple of days. His HR is 160 bpm, BP is 90/50 and his weight is 12 kg. Which is the SINGLE best feature to prompt you to start IV fluid resuscitation?</p> <p>A. Capillary refill of 4 seconds B. Not thirsty C. Weight loss of more than 5% D. Vomited three times or more in the past 24 hours E. Infants who were of low birth weight</p>



Normal capillary refill time is usually less than 2 seconds. Prolonged capillary refill time is a sign of clinical shock. Intravenous fluid should be started immediately.

Prolonged capillary refill time is a sign of clinical shock.

	No clinically detectable dehydration	Clinical dehydration	Clinical shock
Symptoms (remote and face-to-face assessments)	Appears well	Red flag Appears to be unwell or deteriorating	
	Alert and responsive	Red flag Altered responsiveness (for example, irritable, lethargic)	Decreased level of consciousness
	Normal urine output	Decreased urine output	
	Skin colour unchanged	Skin colour unchanged	Pale or mottled skin
	Warm extremities	Warm extremities	Cold extremities
Signs (face-to-face assessments)	Alert and responsive	Red flag Altered responsiveness (for example, irritable, lethargic)	Decreased level of consciousness
	Skin colour unchanged	Skin colour unchanged	Pale or mottled skin
	Warm extremities	Warm extremities	Cold extremities
	Eyes not sunken	Red flag Sunken eyes	
	Moist mucous membranes (except after a drink)	Dry mucous membranes (except for 'mouth breather')	
	Normal heart rate	Red flag Tachycardia	Tachycardia
	Normal breathing pattern	Red flag Tachypnoea	Tachypnoea
	Normal peripheral pulses	Normal peripheral pulses	Weak peripheral pulses
	Normal capillary refill time	Normal capillary refill time	Prolonged capillary refill time



		Normal skin turgor	Red flag Reduced skin turgor		
		Normal blood pressure	Normal blood pressure	Hypotension (decompensated shock)	
40.	<p>A 4 year old girl attends clinic with a history of diarrhea, bloating and abdominal pain. She is failing to thrive. Blood test reveal a hypochromic microcytic anaemia. Alpha gliadin antibodies are positive. What is the SINGLE most likely diagnosis?</p> <p>A. Pernicious anaemia B. Crohn's disease C. Ulcerative colitis D. Coeliac disease E. Whipple's disease</p> <p>The key word here is the alpha gliadin antibodies which are positive. This is a test for coeliac disease.</p> <p>Coeliac disease: an example of malabsorption Associated with exposure to gluten, rye, wheat, barley</p> <p>Malabsorption typically presents with diarrhoea, failure to thrive and anaemia</p> <p>As subclinical/latent forms exist, investigate any unexplained anaemia, fatigue, 'irritable bowel' symptoms, and diarrhoea</p> <p>Patients mostly present between 6 months to 2 years of age but can occur at any age. There may be a deceleration on the growth chart after introduction to gluten at weaning (4–6 months).</p> <p>Diagnosis <u>Immunology:</u></p> <ul style="list-style-type: none">- raised IgA anti-tissue transglutaminase (IgAtTG), anti-gliadin (IgA-AGA), and endomysial antibodies (EMA) <p><u>Biopsy:</u> Confirm by finding villous atrophy on small bowel biopsy (gold standard)</p>				



41.	<p>A 6 year old boy is brought to clinic by his mother. She says that he is still unable to keep dry at night and will be attending a sleepover party at a friends house. She says that it would be embarrassing if he wets himself during the sleepover and she wants to know if anything can be done. What is the SINGLE most appropriate management?</p> <p>A. Desmopressin B. Reassurance C. Behavioural therapy D. Enuresis alarm E. Oxybutynin</p> <p>For children older than 5 years of age, If rapid or short-term control of bedwetting is required (for example for sleepovers or school trips), offer treatment with desmopressin.</p> <p>The management of bedwetting can be a little confusing as different sources and books would have slightly different answers. But the best place to take the answers from would be NICE CKS as these are NICE guidelines and PLAB questions would have to adhere by them.</p> <p>The points on NICE CKS can be summarized bellow: <i>Primary bedwetting (without daytime symptoms)</i> Younger than 5 → reassurance!</p> <p>Older than 5 years of age</p> <ul style="list-style-type: none">- If bedwetting is infrequent (less than 2x a week) → reassurance- If long-term treatment required → enuresis alarm (1st line) + reward system- If short-term control of bedwetting is required (e.g. sleep overs) → Desmopressin <p>If treatment has not responded to at least two complete courses of treatment with either an alarm or desmopressin → Refer to secondary care</p> <p><i>Primary bedwetting (with daytime symptoms)</i></p> <ul style="list-style-type: none">- Refer all children above 24 months with primary bedwetting and daytime symptoms to secondary care or an enuresis clinic for further investigations and assessment.
42.	<p>A 9 year old boy has long arms, legs, fingers and toes. He is tall for his age and is noted to have scoliosis when examining his back. He started wearing glasses at a young age as he was not able to see distance. What is the SINGLE most likely syndrome?</p> <p>A. Osteogenesis imperfecta B. Prader-willi syndrome C. DiGeorge syndrome D. Marfan's syndrome E. Ehlers-Danlos syndrome</p>



	<p>Marfan's syndrome</p> <p>Features</p> <ul style="list-style-type: none">- Tall and thin- Long arms, legs, fingers and toes- Arachnodactyly (long spidery fingers)- Flexible joints- Scoliosis- Cardiovascular → Aortic dilatation or dissection, aortic regurgitation, mitral valve prolapse, mitral regurgitation, abdominal aortic aneurysm- Lungs → pleural rupture causing spontaneous pneumothorax- Eyes → lens dislocation, high myopia.
43.	<p>A 3 year old boy presents with fever, pallor, and decreased appetite. On examination, there are palpable non-tender nodules along the deep cervical chain in the neck. Blood results show: Hb 10g/dl ; MCV 80 fl ; WCC $2 \times 10^9/L$. What is the SINGLE most likely diagnosis?</p> <p>A. Acute myeloid leukaemia B. Acute lymphoblastic leukaemia C. Chronic myeloid leukaemia D. Chronic lymphocytic leukaemia E. Hodgkin's lymphoma</p> <p>This is a frequent topic on PLAB 1. Be sure to know the differentiations between all the leukaemias and be able to classify them by the age groups. Acute lymphoblastic leukaemia (ALL) is the most common paediatric cancer. The differentiating factor between ALL and acute myeloid leukaemia (AML) is AML would present with massive splenomegaly on examination. ALL would just have lymphadenopathy.</p> <p>But in actual fact, AML and ALL are usually indistinguishable clinically. This means you cannot determine the diagnosis only from the clinical presentation. ALL is more often associated with infiltration of other organs, but AML can do it as well. Acute lymphocytic leukaemia (ALL) is more common in children, and acute myelogenous leukaemia (AML) is more common in adults</p> <p>It is very unlikely that the PLAB questions would ask you to differentiate the AML from ALL using specific test. However, if a child (young age) is given with signs and symptoms of pancytopenia, ALL would be the most likely as it is the commonest childhood leukaemia.</p> <p>Acute lymphoblastic leukaemia (ALL)</p> <p>Presentation:</p> <ul style="list-style-type: none">- Anaemia, pallor, anorexia- Non-tender nodules (neck, axilla, groin)- +/- Bruising- Variation of hepatosplenomegaly (but this is not a key feature)- Bleeding



	<p>Diagnosis:</p> <ul style="list-style-type: none">- Blast cells on blood film- White cell count can be low, normal, or elevated- Normocytic, normochromic anaemia <p>Treatment:</p> <ul style="list-style-type: none">- Chemotherapy (in 3 stages)- Consider correcting anaemia- Neutropenia if infection, admit for IV antibiotics
44.	<p>A 4 year old boy is brought to clinic by his worried mother complaining that he is still unable to keep dry at night. He wets his bed in the middle of the night and has daytime wetting as well.. There was no period where he managed to stay dry during the night. The mother wants to know if anything can be done to resolve this issue. What is the SINGLE most appropriate management?</p> <p>A. Desmopressin B. Reassurance C. Behavioural therapy D. Enuresis alarm E. Referral to to secondary care or enuresis clinic</p> <p>Children older than 2 years of age with primary bedwetting and daytime symptoms should be managed in secondary care or enuresis clinic. Referral for further investigations and assessment is recommended because bedwetting with daytime symptoms is usually caused by disorders of the lower urinary tract.</p> <p>The management of bedwetting can be a little confusing as different sources and books would have slightly different answers. But the best place to take the answers from would be NICE CKS as these are NICE guidelines and PLAB questions would have to adhere by them.</p> <p>The points on NICE CKS can be summarized bellow: <i>Primary bedwetting (without daytime symptoms)</i> Younger than 5 → reassurance!</p> <p>Older than 5 years of age</p> <ul style="list-style-type: none">- If bedwetting is infrequent (less than 2x a week) → reassurance- If long-term treatment required → enuresis alarm (1st line) + reward system- If short-term control of bedwetting is required (e.g. sleep overs) → Desmopressin <p>If treatment has not responded to at least two complete courses of treatment with either an alarm or desmopressin → Refer to secondary care</p> <p><i>Primary bedwetting (with daytime symptoms)</i></p>



	<ul style="list-style-type: none">- Refer all children above 24 months with primary bedwetting and daytime symptoms to secondary care or an enuresis clinic for further investigations and assessment.
45.	<p>A 6 year old boy is brought into the Emergency Department by his mother's boyfriend with a fever of 37.8°C of 3 days duration. On examination, there are purple spots on his lower back and brownish discoloration on his left forearm with left shoulder dislocation. The child is quiet and makes no eye contact while in conversation. What is the SINGLE most appropriate action to be taken after attending his fever?</p> <p>A. Discharge home with appropriate medications B. Admit patient into general paediatrics ward C. Refer to social services D. Option B and C E. None of the above</p> <p>This is a frequent paediatric topic on PLAB 1. This is a case of non-accidental injury. Since child abuse is suspected from the mother's boyfriend, it is unsafe to let the boy remain in his care. Therefore, admit the child to ensure his safety and then refer to social services.</p> <p>Non accidental injury</p> <p>Presentation:</p> <ul style="list-style-type: none">- Delayed admission into hospital or clinic by carer- Child usually brought in by step-father or boyfriend- Bruising – of varying degrees, color variations (means long term abuse)- Fractures <p>Diagnosis:</p> <ul style="list-style-type: none">- Mostly clinical history <p>Treatment:</p> <ul style="list-style-type: none">- Admit to ward and manage pain- Refer to social services- Treat any other underlying medical conditions
46.	<p>A 3 year old child has severe diarrhoea and vomiting. On examination the child looks lethargic, is seen to have dry lips and has sunken eyes. He has a feeble cry. What is the SINGLE best choice of fluids to give intravenously?</p> <p>A. 0.9% Normal saline B. 0.9% Normal saline + 5% Dextrose C. 0.45% Normal saline D. 0.45% Normal saline + 5% Dextrose E. Albumin</p> <p>This child has features of dehydration and should be resuscitated first. 0.9% normal saline is the best choice for resuscitation.</p>



47. A 9 year old girl presents with arthralgia and purpura over her buttocks and extensor surfaces of the legs bilaterally. Laboratory results showed elevated IgA levels and creatinine. What is the SINGLE most likely diagnosis?

- A. Non-accidental injury
- B. Henoch-Schonlein purpura**
- C. Bacterial meningitis
- D. Haemolytic uraemic syndrome
- E. Idiopathic thrombocytopenic purpura

This is a diagnosis of Henoch-Schonlein Purpura (HSP). Take note of the child's age: PLAB 1 will usually have their case stems present with less than 10 years of age (peak of 4-6 years). In haemolytic uraemic syndrome, the age group would be much younger 3 months to 3 years. Also be sure to be able to differentiate rashes for PLAB 1. In HSP, the clue is purpura over extensor surfaces. For it to be idiopathic thrombocytopenic purpura, the case stem will provide clues to previous upper respiratory tract infection and/or low platelet count.

Henoch-Schönlein purpura (HSP)

Presentation:

- Purpura (non-blanching) over buttocks and extensor surfaces
- Arthralgia (especially in the knees and ankles)
- Abdominal pain

Diagnosis:

- Mainly a clinical diagnosis
- Look for elevated ESR, IgA
- Raised creatinine ; labs consistent with nephropathy

Treatment:

- Self-limiting; conservative management
- NSAIDs for arthralgic pain → beware of choosing this option if case stem has impaired renal involvement!
- Corticosteroids can improve associated arthralgia and the symptoms associated with gastrointestinal dysfunction

48. A 2 year old child presents to the A&E department with drooling, sore throat and loss of voice. He has fever with a temp of 38.9C. His parents tell you that he has not been immunised because they are afraid of the side effects of the vaccination. What is the SINGLE most appropriate immediate management?

- A. Direct pharyngoscopy
- B. Summon anaesthetist**
- C. IM Epinephrine
- D. IV fluids
- E. Start antibiotics



	<p>The clincher here is drooling of saliva. If you find any questions with a child with drooling of saliva. It is likely that this is acute epiglottitis, Summon the most experienced anaesthetist to intubate before obstruction occurs.</p> <p>Acute epiglottitis</p> <ul style="list-style-type: none">- Now rare due to the introduction of Hib vaccine. However, it is still a serious infection. Prompt recognition and urgent treatment is essential- Caused by Haemophilus influenzae type B <p>Features</p> <ul style="list-style-type: none">- Rapid onset- High temperature- Stridor- Drooling of saliva- Difficulty speaking- Muffling or changes in the voice
49.	<p>A 4 week old female infant presents to the Emergency Department with vomiting after every feed. The child is also constipated. On examination, there is a right sided olive-sized abdominal mass on palpation. What is the SINGLE most likely diagnosis?</p> <p>A. Pyloric stenosis B. Duodenal atresia C. Malrotation D. Coeliac disease E. Gastro-oesophageal reflux disease</p> <p>This is a classic presentation of pyloric stenosis on PLAB 1. "Olive-sized abdominal mass" is a classic phrase used in describing pyloric stenosis</p> <p>Presentation:</p> <ul style="list-style-type: none">- Projectile non-bilious vomiting- Age group: 3-8 weeks- Olive sized abdominal mass- The child will feel hungry and want to feed despite constant vomiting <p>Diagnosis:</p> <ul style="list-style-type: none">- Abdominal ultrasound <p>Treatment:</p> <ul style="list-style-type: none">- Metabolic alkalosis – correct electrolyte imbalance + hydration- Then referral to paediatric surgery (pyloromyotomy) + nasogastric tube



50. A 4 year old boy presents to the Emergency Department with fever, bloody diarrhea, decreased urine output after a school field trip at a farm. On examination, the boy is pale, tired, and his face is swollen. Lab results: hematocrit 28%, platelets 72 000/ μ L. There is blood and protein in urine. What is the SINGLE most likely diagnosis?

- A. Acute post-streptococcal glomerulonephritis
- B. Disseminated intravascular coagulation
- C. Ulcerative colitis
- D. Intussusception

E. Haemolytic uraemic syndrome

For PLAB 1 paediatrics, know some of the major causes of bloody diarrhea/stool. This is a diagnosis of haemolytic uraemic syndrome. PLAB 1 clues: a young preschool child on an outing with family or friends and returns with bloody diarrhea. If the stem does not state specifically, assume that the child ate or was in an environment at high risk for Shiga toxin producing E. coli.

Haemolytic uraemic syndrome

Presentation:

- Preschool children (< 5 years)
- TRIAD: microangiopathic haemolytic anaemia, thrombocytopenia, and acute renal failure
- Bloody diarrhea, fever, abdominal pain
- Low haemoglobin and hematocrit, low platelets, hypoalbuminaemia

Diagnosis:

- Initial - E.coli serology, stool culture, urinalysis, full blood count
- Renal ultrasound to rule out damage

Treatment:

- Hydration and electrolyte balance
- +/- Nasogastric tube for nutrition intake
- +/- Dialysis
- Paracetamol for pain

51. A 13 year old girl with several years of elevated liver enzymes of unknown etiology presents to clinic with a slow deterioration in her school performance. On examination, there is hepatosplenomegaly, intention tremor, dysarthria, and dystonia. Her urinalysis has elevated levels of glucose, protein, and uric acid. What is the SINGLE most likely diagnosis?

- A. Autoimmune hepatitis
- B. Glycogen storage disease
- C. α 1-Antitrypsin deficiency
- D. Hereditary haemochromatosis

E. Wilson's disease



	<p>PLAB 1 clues for Wilson's disease: there will be behavioural changes, liver dysfunction, and Kayser-Fleischer rings. Option C, while similar to Wilson's, does not exhibit neurological or behavioural changes. Option D is iron overload and also does not exhibit the neurological or behavioural changes typically found in Wilson's.</p> <p>Wilson's Disease</p> <p>Presentation:</p> <ul style="list-style-type: none">- Kayser-Fleischer rings- Liver dysfunction → deranged liver function tests, cirrhosis- Neurological → ataxia, dysarthria, dystonia- Behavioural → personality changes, decreased school performance <p>Diagnosis:</p> <ul style="list-style-type: none">- Wilson's disease scoring system → score > 4- Serum ceruloplasmin - initial- Measurement of hepatic parenchymal copper concentration - definitive <p>Treatment:</p> <ul style="list-style-type: none">- Choice of: D-penicillamine ; trientine ; ammonium tetrathiomolybdate- Neurological involvement - zinc - first line- Acute liver failure / cirrhosis - liver transplant - definitive
52.	<p>A 6 year old male presents to the clinic with obesity and short stature. On examination, his BMI >95th percentile. His past medical history is significant for a renal transplant. What is the SINGLE most likely diagnosis?</p> <p>A. Cushing's syndrome B. Congenital hypothyroidism C. Primary obesity D. Prader Willi syndrome E. Down's syndrome</p> <p>Cushing's syndrome is a frequent topic that overlaps in paediatrics and endocrinology for PLAB 1. Here it is important to make a few assumptions. The child had a renal transplant and is most likely taking corticosteroids as part of his medication regime. Long term steroid use would induce Cushing's syndrome. Short stature would also result because the steroids would cause premature fusion of the growth plates.</p> <p>Presentation:</p> <ul style="list-style-type: none">- Patient is taking oral steroids- Obesity, moon face, buffalo neck hump, purple abdominal striae- Behavioral/mood changes- Short stature



	<p>Diagnosis:</p> <ul style="list-style-type: none">- Overnight dexamethasone suppression test or 24 hour urinary free cortisol (first line) <p>Treatment:</p> <ul style="list-style-type: none">- Taper the child's steroid medication if possible or find another alternative for immunosuppression
53.	<p>A 1 day old male infant has developed abdominal distension, bilious vomiting, and meconium ileus was present. Prenatal ultrasound had previously revealed echogenic bowel. Which of the following is the SINGLE most likely diagnosis?</p> <p>A. Duodenal atresia B. Cystic fibrosis C. Gastroenteritis D. Malrotation and volvulus E. Hirschsprung disease</p> <p>This is a diagnosis of cystic fibrosis (CF). For PLAB 1, this topic overlaps in both paediatric and adult medicine. Due to the high prevalence and incidence amongst Caucasians in the UK, this is a frequent topic and should be looked into detail for the exam. Note that if the infant was older, then the stem would have features of "poor weight gain with foul smelling stools" and some variation of respiratory deficit. However, this infant is a newborn and therefore "meconium ileus" would be the most obvious clue to the diagnosis.</p> <p>Cystic Fibrosis in Paediatrics</p> <p>Presentation:</p> <ul style="list-style-type: none">- As neonates/infants - poor weight gain, failure to thrive, meconium ileus, bilious vomiting, echogenic bowel on prenatal ultrasound- As children/adolescents - variation of respiratory symptoms, diabetes mellitus, steatorrhea, gallstones- "Foul smelling stools"- Recurrent infections- On examination - "coarse crackles" in lungs <p>Diagnosis:</p> <ul style="list-style-type: none">- Sweat sodium and chloride test (definitive)- If neonate - immunoreactive trypsin (Guthrie card)- Genetic screening for CFTR mutations <p>Treatment (specific for GIT in CF):</p> <ul style="list-style-type: none">- Multidisciplinary team care- Pancreatic enzyme replacement + vitamins + nutritional support (energy increase by 130%)- Pancrex V powder and omeprazole- +/- Gene therapy ; recombinant human deoxyribonuclease



54.	<p>A 2 year old girl has had a temperature of 39°C, poor appetite, abdominal pain and urinary frequency for the last 3 days. What is the SINGLE most appropriate action?</p> <p>A. Catheter specimen of urine for culture B. Clean catch urine specimen for culture C. Full blood count D. KUB Ultrasound E. Supra-pubic aspirate of urine for culture</p> <p>The clinical features described are consistent with urinary tract infection for which a clean catch of urine is the next best action.</p> <p>Special arrangements may be needed for collecting a sample from a child. (Clean catch, catheter or suprapubic aspiration are methods used which reduce the risk of contamination)</p> <p>Routine investigations that are done in urinary tract infection are:</p> <ul style="list-style-type: none">- Dipstick analysis of urine - may treat as bacterial if there are positive results for nitrite and/or leukocytes- Urine microscopy - leukocytes indicate presence of infection- Urine culture
55.	<p>A 3 year old child presents with cough and high temperature which began 2 days ago. A rash is noticed on his buccal mucosa. What is the SINGLE most appropriate diagnosis?</p> <p>A. Measles B. Roseola infectiosum C. Rubella D. Chicken pox E. Impetigo</p> <p>Measles</p> <p>Mnemonics to remember Hard K sounds → Koplik spots, Cough, Conjunctivitis, Coryza</p> <p>Features</p> <ul style="list-style-type: none">- prodrome: irritable, conjunctivitis, fever- Koplik spots (before rash): white spots ('grain of salt') on buccal mucosa- maculopapular rash: starts behind ears then to whole body



56. A 4 week old male infant presents with a 10 day history of non-bilious vomiting that has increased in frequency and forcefulness. Despite feeding and looking well, the infant has lost weight. Abdominal ultrasound reveals a thickened pylorus. Which of the following is the SINGLE most appropriate definitive management?

- A. Normal saline and 5% dextrose
- B. Potassium chloride
- C. Pyloromyotomy**
- D. Nasogastric tube insertion
- E. Barium enema

This is a diagnosis of pyloric stenosis. Note that the PLAB 1 clue does not always have to be “projectile vomiting”. It can also be described as “forceful” and is non-bilious. The abdominal ultrasound with a thickened pylorus or “an olive shaped mass” on palpation are other PLAB 1 clues. Note also the age range: the child usually would be older than 3 weeks. Pay attention to what the question is asking in PLAB 1. Here they would like to know the definitive (gold standard) for management. If they had asked what is the most appropriate “next step” then the answer would be options A and B (usually appear one or the other in answers, or combined).

Pyloric stenosis

Presentation:

- Projectile non-bilious vomiting
- Age group: 3-8 weeks
- Olive sized abdominal mass
- The child will feel hungry and want to feed despite constant vomiting

Diagnosis:

- Abdominal ultrasound

Treatment:

- Metabolic alkalosis – correct electrolyte imbalance + hydration
- Then referral to paediatric surgery (pyloromyotomy) - first line + nasogastric tube

57. The newborn screening results of an 8 day old female infant are as follows: TSH 40 mIU/L and T4 70 nmol/L. The mother notes that the child is difficult to feed and does not cry much. On examination, the child has cold mottled skin and weak, floppy muscles. What is the SINGLE most appropriate management?

- A. Observation and reassess in 3 months
- B. Propylthiouracil
- C. Methimazole
- D. Radioactive iodine
- E. Levothyroxine**



	<p>This is a diagnosis of congenital hypothyroidism. Usually it is found upon newborn screening as per protocol of the NHS. In PLAB 1, thyroid disease is a frequent topic under the endocrine component. Know how thyroid diseases present in paediatrics especially in infants. The symptoms and signs are not always as clear-cut as adults. The infant would usually present with difficulty in feeding, constipation, little crying, and may not be very responsive. On examination, there may enlarged posterior fontanelles and hypotonia along with other usual hypothyroidism features (i.e. decreased temperature, bradycardia, puffy appearance).</p> <p>Congenital hypothyroidism</p> <p>Presentation:</p> <ul style="list-style-type: none">- Difficulty feeding, constipation, little crying- Not very responsive- Hypotonia, dry mottled cold skin- Prolonged neonatal jaundice <p>Diagnosis:</p> <ul style="list-style-type: none">- Neonatal screening for TSH and T4 serum/plasma → initial- Radioisotope scan → definitive- Ultrasound of neck <p>Treatment:</p> <ul style="list-style-type: none">- Levothyroxine oral until 2 years of age
58.	<p>A 12 year old boy presents with severe watery diarrhea for the past 7 days. His urine output is low, mucous membrane are dry, and skin turgor is decreased. What is the SINGLE most appropriate initial management?</p> <p>A. Antibiotic B. Antimotility C. Antiemetic D. Fluid replacement E. Reassurance</p> <p>This child is dehydrated. The low urine output, dry mucous membranes and decreased skin turgor are signs of dehydration. Fluid replacement is needed.</p> <p>The most common cause of gastroenteritis in children in the UK is rotavirus</p> <p>When assessing hydration status NICE advocates using normal, dehydrated or shocked categories rather than the traditional normal, mild, moderate or severe categories.</p> <p>Estimating dehydration (Paediatrics)</p> <p>Clinical dehydration</p> <p>Decreased urine output</p>



	<p>Sunken eyes Dry mucous membranes Tachycardia Tachypnoea Reduced skin turgor</p> <p>Clinical shock Decreased level of consciousness Cold extremities Pale or mottled skin Tachycardia Tachypnoea Weak peripheral pulses Prolonged capillary refill time Hypotension</p> <p>Management If clinical shock → admit for intravenous rehydration If just dehydrated → Oral rehydration solution would do</p> <p>PLAB is unlikely to ask you to differentiate between clinical dehydration or clinical shock. But you must be able to recognize the signs and symptoms of dehydration.</p>
59.	<p>A 5 month old child is unable to speak but makes sounds. She can hold things with her palm, but not her fingers. She smiles and laughs and is not shy. She cannot sit independently but can hold her hand and sit when propped up against pillows. What is the SINGLE best development stage to describe this child?</p> <p>A. Normal B. Delayed speech and language development C. Delayed social development D. Delayed fine motor development E. Delayed gross motor development</p> <p>Only around 12 months does the child say his/her first words. E.g. “mama”</p> <p>Smiling, laughing and being not shy is normal for her age group</p> <p>Only around 7 to 8 months do babies sit unsupported. Refer if by 12 months unable to sit unsupported</p> <p>Holding using her pams at her age group is normal.</p> <p>Developmental milestones is a commonly asked question in PLAB. Try to memorize some basic ones.</p>



60.	<p>A 15 year old boy attended the emergency department with shortness of breath. A diagnosis of spontaneous unilateral pneumothorax was made. He is noted to be tall for his age with long arms and fingers. He also has severe scoliosis. What is the SINGLE most likely syndrome?</p> <p>A. Fragile X syndrome B. Prader-willi syndrome C. DiGeorge syndrome D. Marfan's syndrome E. Ehlers-Danlos syndrome</p> <p>Spontaneous pneumothorax is common in Marfan's syndrome. The other signs and symptoms point towards Marfan's syndrome as well.</p> <p>Marfan's syndrome</p> <p>Features</p> <ul style="list-style-type: none">- Tall and thin- Long arms, legs, fingers and toes- Arachnodactyly (long spidery fingers)- Flexible joints- Scoliosis- Cardiovascular → Aortic dilatation or dissection, aortic regurgitation, mitral valve prolapse, mitral regurgitation, abdominal aortic aneurysm- Lungs → pleural rupture causing spontaneous pneumothorax- Eyes → lens dislocation, high myopia.
61.	<p>An 8 year old boy presents with severe crushing chest pain. He is tall for his age and has a refractive error for which he wears thick glasses for. What is the SINGLE most likely syndrome?</p> <p>A. Fragile X syndrome B. Prader-willi syndrome C. DiGeorge syndrome D. Marfan's syndrome E. Ehlers-Danlos syndrome</p> <p>A tall, myopic child can only be Marfan's syndrome in the exam. The cardiovascular symptoms support this diagnosis.</p> <p>Marfan's syndrome</p> <p>Features</p> <ul style="list-style-type: none">- Tall and thin- Long arms, legs, fingers and toes- Arachnodactyly (long spidery fingers)- Flexible joints- Scoliosis



	<ul style="list-style-type: none">- Cardiovascular → Aortic dilatation or dissection, aortic regurgitation, mitral valve prolapse, mitral regurgitation, abdominal aortic aneurysm- Lungs → pleural rupture causing spontaneous pneumothorax- Eyes → lens dislocation, high myopia.
62.	<p>A 5 week old male infant presents to clinic with jaundice during routine check-up. On examination, the baby is irritable, below average centiles for weight, and the liver is enlarged. Pale stools and dark urine on diaper were observed. The mother is currently not breast-feeding and had placed him on formula. What is the SINGLE most likely diagnosis?</p> <p>A. Galactosemia B. Glucose-6-phosphate dehydrogenase (G6PD) deficiency C. Rh incompatibility D. Congenital viral infection E. Biliary atresia</p> <p>Jaundice in newborns is an important topic within the paediatric section for PLAB 1. Understand the mechanisms and management for neonatal jaundice as well the causes of jaundice post 4 weeks of age. Examination results are consistent with obstructive jaundice therefore option is E. Jaundice in options B and C would occur within 24 hours of birth. Galactosemia would present with vomiting, diarrhea, failure to thrive with jaundice. Liver would not be hard or enlarged.</p> <p>Biliary Atresia</p> <p>Presentation:</p> <ul style="list-style-type: none">- Jaundice with pale stools and dark urine- Usually would present in 3-4 weeks of life- Splenomegaly is not usually a feature unless presentation is late- Failure to thrive is a result of poor absorption <p>Diagnosis:</p> <ul style="list-style-type: none">- Abdominal ultrasound (initial investigation)- Cholangiogram (definitive diagnosis) <p>Treatment:</p> <p>Kasai procedure = hepatoportoenterostomy</p>



63. A 1 week old male infant, born at 32 weeks gestation, is currently in neonatal ICU and was doing well on increasing nasogastric feedings. The nurse now notes that the infant has been vomiting during the last 2 feedings, is less active, and has blood in his stool. On examination, the abdomen was tense, distended with decreased bowel sounds. Abdominal x-ray reveals distended loops of bowel with air in the bowel wall. What is the SINGLE most appropriate next step in management?

- A. Emergent exploratory laparotomy
- B. Reduce volume of feeds per feeding and feed more frequently
- C. Remove nasogastric tube and replace with transpyloric tube, then switch feeds from nasogastric to nasoduodenal tube
- D. Stop feeds, begin intravenous fluids, perform abdominal films, and initiate systemic antibiotics**
- E. Continue the same

This is a diagnosis of necrotising enterocolitis (NEC). This is a classic presentation and are the main PLAB 1 clues: abdominal distension, bloody stool, and air in the bowel wall. Note that usually the infant is usually premature although they can also be a term infant in these case stems. According to guidelines, this infant is between Stage Ib and IIa of NEC, therefore option D is the most appropriate.

Necrotising enterocolitis

Presentation:

- Premature > term infant
- Vomiting (feeding intolerance), decreased activity, varying temperature
- Abdominal distension, bloody stools
- Abdominal plain film - air in the bowel wall

Diagnosis:

- Bell's criteria/staging system
- Abdominal x-ray (supine antero-posterior; lateral decubitus) - initial
- Blood work - include blood film, culture, coagulation, blood gas

Treatment:

- Initial - stop feeds → NG tube free drainage with aspiration → antibiotics → fluids and electrolyte balance
- Antibiotics - penicillin + gentamicin + metronidazole
- If pneumoperitoneum - surgery



64. After several episodes of urinary tract infections, a 2 year old girl undergoes a micturating cystourethrogram which reveals mild dilation of the renal pelvis and reflux into the ureters and kidney. She is currently not on any medication. Which of the following is the SINGLE most appropriate next step in treatment?

- A. Low dose antibiotic prophylaxis daily
- B. Observation with weekly urinalysis and urine culture
- C. Surgical reimplantation of the ureters
- D. Endoscopic injection of bulking agents
- E. None of the above

This is a diagnosis of vesicoureteral reflux (VUR).

For urology questions in paediatrics in this exam, pay particular attention to VUR and urinary tract infections.

Do not go into details for these questions, just know the basic presentation, diagnosis and management according to current guidelines. Note to have a basic understanding that the severity of VUR is graded and management is according to the grade. In this case the child is between grade II to III. Therefore, according to guidelines, she would start with low dose antibiotic prophylaxis before consideration for surgery.

Vesicoureteral reflux

- Condition where urine flows retrograde from bladder into ureters/kidneys

Presentation

- Most children are asymptomatic
- Increases risk of urinary tract infection → Thus, symptoms of a UTI:
 - Fever
 - Dysuria
 - Frequent urination
 - Lower abdominal pain

Diagnosis

- Urinalysis, urine culture and sensitivity → initial investigation
- Renal ultrasound → initial investigation → might suggest the presence of VUR if ureteral dilatation is present
- Micturating cystourethrogram → gold standard
- Technetium scan (DMSA) → for parenchymal damage (seen as cortical scars)

Treatment

- VUR grade I-IV - start with low dose antibiotics prophylaxis daily (i.e. trimethoprim)
- If above fails and/or parenchymal damage consider surgery - reimplantation of the ureters



	<p>The International Reflux Study has found that children can be managed nonsurgically with little risk of new or increased renal scarring, provided they are maintained infection free. Remember, the goal of treatment is to minimize infections, as it is infections that cause renal scarring and not the vesicoureteral reflux. Thus, the importance of continuous antibiotic prophylaxis outweighs surgery in most cases. Note that during early childhood, the kidneys are at higher risk of developing new scars. So it is particularly important to start parenteral antibiotic treatment for patients with vesicoureteral reflux before febrile breakthrough infections.</p> <p>For patients with frequent breakthrough infections, definitive surgical or endoscopic correction is preferred. Surgical correction should also be considered in patients with persistent high-grade reflux (grades IV/V) or abnormal renal parenchyma.</p>
65.	<p>A 12 year old girl presents to clinic with sudden onset of pallor, palpitations, and difficulty breathing while running on the school track. After 30 minutes, her symptoms resolved. This is a first time event and she has never been cyanotic. Cardiac examination was normal. Chest x-ray and echocardiogram were normal. ECG reveals evidence of pre-excitation, delta waves, and prolonged QRS. What is the SINGLE most likely diagnosis?</p> <p>A. Paroxysmal ventricular tachycardia B. Paroxysmal supraventricular tachycardia C. Wolff-Parkinson-White syndrome D. Stokes-Adams pattern E. Excessive stress during exercise</p> <p>This is a diagnosis of Wolff-Parkinson-White (WPW) syndrome. In the UK, 1-3 out 1000 people have this condition therefore, this topic would occur frequently under cardiology for PLAB 1. The age group for the case stem may present itself in an older age (i.e. 20-30). However, the features are similar to the stem above. Note the ECG features, especially the presence of delta waves and pre-excitation pathway.</p> <p>Wolff-Parkinson-White syndrome Presentation:</p> <ul style="list-style-type: none">- Child may be exercising with sudden onset of pallor, difficulty breathing, and palpitations followed by spontaneous recovery- Otherwise asymptomatic child- ECG: delta waves, pre-excitation pattern, prolonged QRS, shortened PR <p>Diagnosis:</p> <ul style="list-style-type: none">- ECG- 24 hour Holter monitor <p>Treatment:</p> <ul style="list-style-type: none">- Catheter ablation - first line- Medications - flecainide and propafenone



66. A 3 year old child is brought to the emergency department by his mother with bruises and swelling over the medial aspect of the left arm. X-ray shows multiple callus formation in the ribs. Bruises on the child's back is seen on examination. Analgesia has been given. What is the SINGLE most appropriate next step?

- A. Check child protection register
- B. Involve social services
- C. Skeletal survey**
- D. Serum calcium
- E. DEXA scan

Skeletal survey is a series of x-ray which is usually used in NAI. Once the skeletal survey has been done, then think of the child's protection register and involve social services. As a junior doctor you should involve your seniors prior to checking child's protection register or involving social services. The chief consideration is the treatment and protection of the child, so do not delay treatment of painful or apparently life-threatening problems, whilst awaiting an 'expert'.

In every hospital system there will be a designated doctor for child protection who should be available for advice. He or she will examine the child and arrange hospital admission for further investigations (e.g. skeletal survey) as necessary. Social Services and the police may need to be involved.

Bruises

Children naturally sustain bruises during minor incidents as part of 'growing up'. Bruising over the knees and shins is a normal finding in children, particularly toddlers, who are also prone to sustaining injuries to their foreheads and chins as a result of falls. As well as considering the possibility of NAI, remember that bruising may occur as part of an unusual pathological disease process (eg Henoch-Schönlein purpura, haemophilia, ITP, leukaemia, and other causes of thrombocytopenia).

The following bruises should prompt consideration of NAI:

- Bruising in unusual sites (eg medial aspect of upper arms or thighs)
- Finger 'imprinting' (eg grip complexes around upper limbs or slap marks)
- Imprints or marks from other objects (eg belt, stick)

Consider NAI in the following fractures

- Multiple fractures of different ages
- Rib and spinal fractures
- Fractures in infants who are not independently mobile
- Long bone fractures in children

There are a few rare bone diseases that may mimic NAI. One commonly asked in PLAB is Osteogenesis imperfecta. They would usually give other clues such as a blue sclerae, dental abnormalities and brittle bones.



67.	<p>A 2 year old boy presents to the Emergency Department with painless rectal bleeding for the past 2 days. On examination, the child is afebrile, tachycardic, alert, playful, and feeding well. Abdominal examination was normal. Which of the following is the SINGLE most likely diagnosis?</p> <p>A. Intussusception B. Ulcerative colitis C. Hirschsprung disease D. Volvulus E. Meckel's diverticulum</p> <p>Meckel's diverticulum PLAB 1 clues (rule of 2): occurs between 2-3 years old, mostly male, approximately 2 inches long, around 2 feet away from the ileo-caecal valve. The child will usually start off with painless rectal bleeding but is otherwise well. Know how to differentiate between painful and painless rectal bleeding in children for PLAB 1. Options A to D would present with painful rectal bleeding with stool at onset.</p> <p>Meckel's diverticulum Presentation:</p> <ul style="list-style-type: none">- Mostly asymptomatic- Painless rectal bleeding- If obstruction: vomiting, abdominal pain- Age group: 2-3 years old; mostly male <p>Diagnosis:</p> <ul style="list-style-type: none">- Radioisotope scan - initial- Laparotomy <p>Treatment:</p> <ul style="list-style-type: none">- Surgical resection
68.	<p>A 10 year old boy presents to the Emergency Department having fallen from a height of 150cm and hit his head while playing in the playground. There was no loss of consciousness and he is currently haemodynamically stable. GCS 15/15. On examination, he is oriented with a swelling and tenderness on his left cheek. Which of the following is the most SINGLE most appropriate initial investigation?</p> <p>A. CT brain B. MRI brain C. EEG D. Facial x-ray E. None of the above</p>



	<p>In this case stem, the patient is showing no indication of neurological deficit and is asymptomatic. According to the revised NICE guidelines in 2014, CT nor MRI are necessary. By protocol, the child having fallen from such a height should be admitted and observed at least for 4 hours (NICE guidelines) in addition to the facial x-ray to rule out any zygoma fractures (due to swelling and tenderness in the cheek). For PLAB 1, if the child is doing well, asymptomatic, with GCS 15/15 and no changes in neurological functions within 1 hour of admission, go for the investigation with the least harm first.</p> <p>Head injuries in Paediatrics</p> <p>Presentation:</p> <ul style="list-style-type: none">- Child playing or in an athletic match- Head / facial trauma- Swelling, bruising on the face only <p>Diagnosis:</p> <ul style="list-style-type: none">- For this case stem: Facial x-ray (initial) – if fractures are detected then do CT- CT head (definitive) - if on arrival scan within 1 hour if the child has GCS <14, neurological deficits according to NICE guidelines <p>Treatment (for this case stem):</p> <ul style="list-style-type: none">- Observation- Analgesia for pain
69.	<p>A 5 year old boy presents with drooling of saliva and severe stridor. He has a temperature of 39.0°C and is sick looking. He has difficulty speaking and has muffled voice. A lateral radiograph demonstrates a “thumb sign”. What is the SINGLE most likely diagnosis?</p> <p>A. Croup B. Recurrent aspiration C. Diphtheria D. Acute epiglottitis E. Inhaled foreign body</p> <p>The given case is classic picture of acute epiglottitis.</p> <p>The thumb sign is a manifestation of an oedematous and enlarged epiglottis which is seen on lateral soft-tissue radiograph of the neck, and it suggests a diagnosis of acute infectious epiglottitis.</p> <p>The second clincher here is drooling of saliva. If you find any questions with a child with drooling of saliva. It is likely that this is acute epiglottitis, Summon the most experienced anaesthetist to intubate before obstruction occurs.</p> <p>Acute epiglottitis</p> <ul style="list-style-type: none">- Now rare due to the introduction of Hib vaccine. However, it is still a serious infection. Prompt recognition and urgent treatment is essential



	<ul style="list-style-type: none">- Caused by Haemophilus influenzae type B <p>Features</p> <ul style="list-style-type: none">- Rapid onset- High temperature- Stridor- Drooling of saliva- Difficulty speaking- Muffling or changes in the voice
70.	<p>A 6 week old child is brought to A&E with persistent non-bilious vomiting. The child feels hungry and wants to feed despite constant vomiting. Biochemistry shows K⁺ of 3.1 mmol/l. What is the SINGLE most likely diagnosis?</p> <p>A. Pyloric stenosis B. Duodenal atresia C. Malrotation D. Achalasia cardia E. Tracheo-esophageal fistula</p> <p>Hypokalaemia and non-bilious vomiting should direct you towards pyloric stenosis as a diagnosis.</p> <p>It is unlikely to be duodenal atresia as the newborn would presents with bilious vomiting with every feed. In this question, the scenario was one of non-bilious vomiting.</p> <p>Malrotation is manifested by bilious vomiting, crampy abdominal pain, abdominal distention, and the passage of blood and mucus in their stools. Again in this scenario, non-bilious vomiting was given.</p> <p>Pyloric stenosis</p> <p>Presentation:</p> <ul style="list-style-type: none">- Projectile non-bilious vomiting- Age group: 3-8 weeks- Olive sized abdominal mass- The child will feel hungry and want to feed despite constant vomiting <p>Diagnosis:</p> <ul style="list-style-type: none">- Abdominal ultrasound <p>Treatment:</p> <ul style="list-style-type: none">- Metabolic alkalosis – correct electrolyte imbalance + hydration- Then referral to paediatric surgery (pyloromyotomy) + nasogastric tube



71.	<p>An 8 year old boy is brought by his mother to the emergency department with bruises on his lower back and a left shoulder dislocation. The child currently lives with his stepfather. The young boy is quiet and makes no eye contact while in conversation. What is the SINGLE most likely diagnosis?</p> <p>A. Non accidental injury B. Malnutrition C. Thrombocytopenia D. Osteogenesis imperfecta E. Haemophilia</p> <p>This is a frequent paediatric topic on PLAB 1. This is a case of non-accidental injury. Having a non biological father in the picture is always a hint for non accidental injury in PLAB.</p> <p>Non accidental injury</p> <p>Presentation:</p> <ul style="list-style-type: none">- Delayed admission into hospital or clinic by carer- Child usually brought in by step-father or boyfriend- Bruising – of varying degrees, color variations (means long term abuse)- Fractures <p>Diagnosis:</p> <ul style="list-style-type: none">- Mostly clinical history <p>Treatment:</p> <ul style="list-style-type: none">- Admit to ward and manage pain- Refer to social services- Treat any other underlying medical conditions
72.	<p>An 8 year old boy presents to clinic with behavioral problems. He is inattentive in class. During the interview, he is unable to sit still; he is constantly blinking his eyes, making grunting noises with his throat, and rubbing his fingers. What is the SINGLE most likely diagnosis?</p> <p>A. Asperger syndrome B. Cotard's syndrome C. Rett's syndrome D. Ekbom's syndrome E. Tourette's syndrome</p> <p>This is a classic scenario for Tourette's syndrome in PLAB 1. Other clues that may appear on PLAB 1 may be the child yelling in class intermittently or shouting expletives. Note the age: most are diagnosed at 6-8 years, maximum to the age of 13.</p>



The other syndromes are less likely to be the answer:

Asperger syndrome → Characterized by severe persistent impairment in reciprocal social interactions, repetitive behaviour patterns, and restricted interests. IQ and language are normal or, in some cases, superior. Although tics (like the above case) can also be found in asperger syndrome, it is more specific for Tourette's syndrome. Not to mention, the question would include an impairment of social skills if the PLAB examiners wanted you to have picked Asperger syndrome.

Cotard's syndrome → is a rare mental illness in which an afflicted person holds the delusion that they are dead

Rett's syndrome → There is normal development for 2–3yrs, followed by a loss of acquired motor, language, and social skills between ages 3 and 4yrs. Stereotypies and compulsions are common.

Ekbom's syndrome → Also called restless leg syndrome. Unpleasant, often painful sensations in the legs, particularly on sleep onset

Tourette's syndrome

Presentation:

- Young (6-8 years old) mostly male
- Repetitive movements or gestures that are disruptive in the classroom or to people around the child (can be motor or vocal) → Tics
- Jerks, blinks, sniffs, nods, spitting, stuttering, irrepressible explosive obscene verbal ejaculations, grunts, and squeaks

Diagnosis:

- Clinical diagnosis

Treatment:

- Risperidone or haloperidol
- Behavioral therapy - Habit-reversal training

73. A 10 month old male infant presents with a 6 hour history of crying and passage of loose, bloody stool. On examination, the infant is irritable, with intermittent drawing up of his knees to his chest, and a temperature of 38.8°C. Rectal examination reveals gross, currant jelly-coloured blood on finger. What is the SINGLE most likely diagnosis?

- A. Constipation
- B. Gastroenteritis
- C. Intussusception**
- D. Meckel's diverticulum
- E. Volvulus

This is a diagnosis of intussusception. Note the PLAB 1 clues: the infant is between 5-12 months, child has been crying persistently (indication of abdominal pain), drawing the legs up



	<p>to chest, currant jelly blood in stool, and sausage-shaped mass. This along with pyloric stenosis and malrotation with volvulus is a common paediatric surgical question. Know the differences between each.</p> <p>Intussusception</p> <p>Presentation:</p> <ul style="list-style-type: none">- TRIAD of:<ul style="list-style-type: none">o Abdominal paino Currant jelly blood in stoolo Sausage-shaped mass on palpation (often in the right upper quadrant)- Child is crying persistently- Drawing up of legs- May be vomiting if severe <p>Diagnosis:</p> <ul style="list-style-type: none">- Abdominal ultrasound → may show doughnut or target sign- Bowel enema <p>Treatment:</p> <ul style="list-style-type: none">- Air enema reduction or laparotomy <p><i>Remember: "Red currant jelly" stools is pathognomonic for intussusception</i></p>
74.	<p>A 2 year old boy was separated from his mother in a shopping mall. He got very upset and then fell down and became unconscious. He looked blue. He became conscious after 2 minutes and was back to his active self after an hour. His mother is extremely concerned. What is the SINGLE most appropriate next step?</p> <p>A. CT head B. Electroencephalogram (EEG) C. Full blood count (FBC) D. Reassure E. Pulmonary function test</p> <p>The diagnosis here is breath-holding spells</p> <p>This usually occurs in young children when they are upset and can be precipitated by trauma or when separated from the parents.</p> <p>Basically anything which may upset a child including injury from falling down</p> <p>These children stop breathing for some time, they may turn blue or have little jerks of the limbs. After a period of time they spontaneously start breathing. They become completely fine after an hour.</p>



	Treatment is not necessary. Usually just reassure parents
75.	<p>A 6 year old boy is brought to clinic by his worried mother complaining that he is still unable to keep dry at night. He wets his bed in the middle of the night at least three times a week but he is without daytime symptoms. There was no period where he managed to stay dry during the night. The mother wants to know if anything can be done to resolve this issue. His medical history is insignificant and there is no history of recurrent urinary tract infections. What is the SINGLE most appropriate management?</p> <p>A. Desmopressin B. Reassurance C. Behavioural therapy D. Enuresis alarm E. Referral to surgery</p> <p>This child is 6 years old with primary bedwetting (without daytime symptoms). Treatment with an enuresis alarm (first-line treatment) in combination with positive reward systems (for example star charts) would be the most appropriate.</p> <p>Definitions: Primary nocturnal enuresis refers to children that have never been dry for more than a 6-month period</p> <p>Secondary nocturnal enuresis refers to the re-emergence of bedwetting after a period of being dry for at least 6 months</p> <p>The management of bedwetting can be a little confusing as different sources and books would have slightly different answers. But the best place to take the answers from would be NICE CKS as these are NICE guidelines and PLAB questions would have to adhere by them.</p> <p>The points on NICE CKS can be summarized bellow: <i>Primary bedwetting (without daytime symptoms)</i> Younger than 5 → reassurance!</p> <p>Older than 5 years of age</p> <ul style="list-style-type: none">- If bedwetting is infrequent (less than 2x a week) → reassurance- If long-term treatment required → enuresis alarm (1st line) + reward system- If short-term control of bedwetting is required (e.g. sleep overs) → Desmopressin <p>If treatment has not responded to at least two complete courses of treatment with either an alarm or desmopressin → Refer to secondary care</p> <p><i>Primary bedwetting (with daytime symptoms)</i></p> <ul style="list-style-type: none">- Refer all children above 24 months with primary bedwetting and daytime symptoms to secondary care or an enuresis clinic for further investigations and assessment.



76. A 13 year old girl presents to the Emergency Department with weight loss, bloody diarrhea, and fever intermittently over the last 6 months. The intermittent episodes has caused occasional restriction of activity. Currently she is having moderate abdominal pain. Labs reveal elevated ESR and positive p-ANCA. What is the SINGLE most likely management for this patient?

A. Topical and oral mesalazine

B. Prednisolone and mesalazine oral

C. Prednisolone IV

D. Cyclosporine IV

E. Infliximab IV

This is a diagnosis of ulcerative colitis (UC). PLAB 1 would usually have an adolescent (12-17 years) who either presents to clinic or emergency with the above symptoms. There may or may not be other UC clues: growth failure, toxic megacolon, and affecting only the submucosa of the colon. Know Crohn's disease and ulcerative colitis well for PLAB 1 as it will appear in both paediatric and adult questions. Note that the management is according to NICE guidelines and is the same for both paediatrics and adult medicine. In this case, the patient is classified as having mild to moderate UC according to NICE.

Ulcerative colitis in Paediatrics

Presentation:

- Bloody diarrhea, abdominal pain, tenesmus
- Vomiting, weight loss, fatigue
- p-ANCA positive

Diagnosis:

- Clinical diagnosis combined with rectal biopsies
- Upper endoscopy - to rule out Crohn's
- Stool culture - to rule out infection
- Paediatric UC Activity Index - for classification of severity

Treatment:

- Topical and oral aminosalicylate (mesalazine/sulfasalazine) - first line
- Add prednisolone oral - only if aminosalicylate is ineffective with no improvement after 4 weeks treatment
- Infliximab - only in severe UC for paediatrics
- Cyclosporin - if severe UC
- Surgery - only consider if severe



77. A 5 year old boy is brought to clinic by his mother. The young boy has a distinct nasal speech and snores heavily at night. He is hyperactive during the day but has poor concentration. He is noted to be constantly breathing through his mouth. What is the SINGLE most appropriate action?

- A. Arrange hearing test
- B. Assess development milestones
- C. Refer to ENT surgeon**
- D. Refer to speech therapist
- E. Arrange a magnetic resonance imaging scan

The likely diagnosis here is obstructive sleep apnoea syndrome. Referrals are usually to paediatric physicians, although sometimes paediatric neurologists, respiratory doctors or ENT consultants may have a specialist interest.

Obstructive sleep apnoea syndrome in children

Obstructive Sleep Apnoea Syndrome in Children is mainly due to enlarged tonsils and adenoids

Presentation

- Snoring - usually parents seek attention; many will just get better as they grow older
- Mouth breathing
- Witnessed apnoeic episodes
- Daytime sleepiness and somnolence is common in childhood OSAS, in contrast with adults who often fall asleep during the day
- Sleep-deprived children tend to become hyperactive, with reduced attention spans, and be labelled as difficult or disruptive, or even ADHD. They may not be doing well at school due to poor concentration

Investigations:

- Overnight in-laboratory polysomnography (PSG) continues to be the gold standard instrument
 - o During sleep studies the following are usually monitored:
 - Oxygen saturations and heart rate.
 - Airflow at nose or mouth.
 - Chest and abdominal movements.
 - ECG, electroencephalogram, electromyogram and sometimes electro-oculogram (eye movements)



78. A 2 year old child was brought by his mother with swelling on the right side of his neck extending from the angle of the mouth to the middle one third of the sternocleidomastoid muscle. The swelling is on the anterolateral side of the sternocleidomastoid muscle. On examination, the mass is partially compressible. when subjected to light test is brilliantly translucent. What is the SINGLE most likely diagnosis?

A. Lymphangioma

- B. Branchial cyst
- C. Thyroglossal cyst
- D. Ranula
- E. Grave's disease

Both lymphangioma and branchial cyst are lateral neck masses. Branchial cysts are not translucent whereas lymphangioma when subjected to light test is brilliantly translucent.

Lymphangiomas

Lymphangiomas are uncommon, hamartomatous, congenital malformations of the lymphatic system that involve the skin and subcutaneous tissues. It occurs as a result of sequestration or obstruction of developing lymph vessels in approximately 1 in 12,000 births.

Lymphangiomas can occur anywhere in the skin and the mucous membranes. The most common sites are the head and the neck especially in the posterior triangle of the neck.

The cysts are lined by endothelium and filled with lymph. Occasionally unilocular cysts occur, but more often there are multiple cysts infiltrating the surrounding structures and distorting the local anatomy.

The mass may be apparent at birth or may appear and enlarge rapidly in the early weeks or months of life as lymph accumulates; most present by age 2 years. (90% of lymphangioma occur in children less than 2 years)

Lymphangiomas are soft and nontender and when subjected to light test was brilliantly translucent.

79. A 3 month old infant presents with recurrent infections and feeding difficulties. His face looks dysmorphic and has a cleft palate. A chest X-ray shows absent thymic shadow. What is the SINGLE most likely diagnosis?

- A. Down's syndrome
- B. Fragile X syndrome
- C. DiGeorge's syndrome**
- D. Marfan's syndrome
- E. Edwards' syndrome

DiGeorge's syndrome is a deletion of chromosome 22q11.2. It causes absent thymus, fits, small parathyroids (thus decreased Ca^{2+}), anaemia, lymphopenia, low levels of growth hormone, low T-cell-immunity.



	<p>It is related to velo-cardiofacial syndrome: characteristic face, multiple anomalies, eg cleft palate, heart defects, cognitive defects</p> <p>Developmental delay, facial dysmorphism, palatal dysfunction and feeding difficulties are seen in most infants with this syndrome.</p> <p>The facial dysmorphism is typically mild but fairly typical. These include hypertelorism, hooded eyelids, tubular nose, broad nose tip, small mouth and mild ear abnormalities. Note that you do not need to remember these features for PLAB. The most important factor to memorize here is the absent thymic shadow which is pathognomonic for DiGeorge's syndrome</p> <p>Mnemonic: CATCH-22</p> <ul style="list-style-type: none">- <i>Cardiac abnormality (commonly interrupted aortic arch, truncus arteriosus and tetralogy of Fallot)</i>- <i>Abnormal facies</i>- <i>Thymic aplasia</i>- <i>Cleft palate</i>- <i>Hypocalcemia/Hypoparathyroidism</i>- <i>With the 22 to remind one the chromosomal abnormality is found on the 22 chromosome</i>
80.	<p>A 4 month old child is brought to Accident & Emergency by her parents. She is found to weigh 4.1kg. She presents with multiple bruises on her left and right lower leg. Her left ankle is swollen and she refuses to move it. She appears irritable and she also has a runny nose. What is the SINGLE most likely diagnosis?</p> <p>A. Haemophilia B. Thrombocytopenia C. Non accidental injury D. Malnutrition E. Osteogenesis imperfecta</p> <p>This is a probable non-accidental injury. This infant weighs 4.1kg. For a 4 month old infant this is beneath the normal weight gain line. A female infant of 4 months should weigh about 6.1kg and a male infant of 4 months should weigh about 6.8kg. Another clue to the diagnosis of NAI is the multiple bruises on her lower limbs. This is the most common site of NAI in the infant population. It arises from parents or caregivers gripping and pulling the infant by the legs.</p> <p>Haemophilia is incorrect because even though haemophilia is a possible diagnosis, it is improbable. Haemophilia is an X-linked recessive condition and this is a female infant. Haemophilia CAN affect females but it is extremely rare and if they had wanted you to pick haemophilia they would have give additional clues such as neonatal bleeding following venipuncture, gastrointestinal hemorrhage or intracranial bleeding.</p>



	<p>Thrombocytopenia is incorrect because it usually presents following a viral infection in children. Although it presents with bruising and petechiae, it is an improbable answer in this question because the diagnosis of thrombocytopenia lies solely on blood testing and blood smear. You cannot make a diagnosis of thrombocytopenia based on clinical signs.</p>
81.	<p>A 9 year old girl, known case of asthma, presents to the Emergency Department with a 1 day history of shortness of breath that is increasing in severity. She had a previous upper respiratory tract infection 1 week prior which had resolved. Chest x-ray reveals bilateral hyperinflation. On arrival, she was given oxygen, nebulized beta-2 agonist, and oral prednisolone. She is now drowsy, respiratory rate is 30 and her SpO2 is 90%. Which of the following is the SINGLE most appropriate investigation?</p> <p>A. Arterial blood gas B. Pulse oximetry C. Spirometry D. CT chest E. Peak flow meter</p> <p>Know the step-wise management for acute asthma exacerbation in paediatric and adult medicine. Questions in PLAB 1 would have a similar case stem but asking questions pertaining to investigations and treatment. Here the patient is breathless and we would need to see if she is in respiratory acidosis to determine the need for intubation/assisted ventilation.</p> <p><u>Acute severe asthma</u></p> <p>SpO2 <92% PEF 33–50%</p> <ul style="list-style-type: none">- Can't complete sentences in one breath or too breathless to talk or feed- Heart rate >125 (>5 years) or >140 (2-5 years)- Respiratory rate >30 breaths/min (>5 years) or >40 (2–5 years) <p><u>Life threatening asthma</u></p> <p>SpO2 <92% PEF <33%</p> <ul style="list-style-type: none">- Silent chest- Cyanosis- Poor respiratory effort- Hypotension- Exhaustion- Confusion <p><u>Initial treatment of acute asthma in children aged 2 and older</u></p> <p>Oxygen → Children with life-threatening asthma or SpO2 <94% should receive high flow oxygen via a tight fitting face mask or nasal cannula at sufficient flow rates to achieve normal saturations of 94–98%.</p>



	<p>Bronchodilators → Inhaled β_2 agonists are the first line treatment for acute asthma.</p> <ul style="list-style-type: none">- A pMDI + spacer is the preferred option in children with mild to moderate asthma.- If symptoms are refractory to initial β_2 agonist treatment, add ipratropium bromide- Add magnesium sulphate to each nebulised salbutamol and ipratropium in the first hour in children with a short duration of acute severe asthma symptoms presenting with an oxygen saturation less than 92% <p>Steroid therapy → Give oral steroids early in the treatment of acute asthma attacks. (IV can be given too)</p> <p><u>Second line treatment of acute asthma</u></p> <ul style="list-style-type: none">- Add single bolus dose of intravenous salbutamol in a severe asthma attack where the patient has not responded to initial inhaled therapy.- Aminophylline for children with severe or life-threatening asthma unresponsive to maximal doses of bronchodilators and steroids.
82.	<p>An 8 week baby boy is noted to be jaundiced. He has feeding difficulty, with vomiting and failure to gain weight. His stools are yellow and his urine is pale straw coloured. What is the SINGLE most likely diagnosis?</p> <p>A. Galactosaemia B. Biliary atresia C. Glucose-6-phosphate dehydrogenase (G6PD) deficiency D. Breast milk jaundice E. Congenital viral infection</p> <p>THIS IS REALLY A QUESTION OF EXCLUSION</p> <p>Biliary atresia causes obstructive picture where stools are pale and urine becomes dark which is NOT the case here.</p> <p>Glucose-6-phosphate dehydrogenase (G6PD) deficiency like the other haemolytic diseases has an onset of jaundice usually less than 24 hours</p> <p>Breast milk jaundice is a possibility but usually the baby is well and the jaundice usually resolves by six weeks. Occasionally it can continue for up to four months.</p> <p>Congenital viral infection usually causes jaundice in the first 24 hours as well.</p> <p>The only possible answer is galactosaemia</p>



	<p>Galactosaemia</p> <p>Although it is a rare inherited disease it is among the most common carbohydrate metabolism disorders. It can be a life-threatening illness during the newborn period</p> <p>The cardinal features are hepatomegaly, cataracts and mental handicap.</p> <p>Presentation</p> <ul style="list-style-type: none">- There is often feeding difficulty, with vomiting and failure to gain weight, with poor growth in the first few weeks of life- Lethargy and hypotonia occur- Jaundice and hepatomegaly develop- Cataracts may be apparent even in the early days of life <p>Management:</p> <p>As soon as the diagnosis is made, milk should be discontinued to remove the lactose load. This will have some immediate benefit.</p>
83.	<p>A 7 day baby whose birth weight was initially 3.5 kg, has a weight of 3.3 kg currently. What is the SINGLE most appropriate next action?</p> <p>A. Inform seniors and check the child protection register B. Refer for a nutritional assessment C. Request a skeletal survey D. Reassure mother and continue regular child care E. Inform the police</p> <p>It is usual for babies to lose between five per cent and 10 per cent of their birth weight a few days after the birth. Note that this does not mean the child is not getting enough milk. One should not jump to the conclusion of child abuse with such minor weight loss.</p> <p>Remember that in labour, very often mothers receive intravenous fluid to prevent dehydration. This can contribute to a slightly higher birth weight for the neonate as he would have taken some fluid onboard. The fluids are lost over the next couple of hours to days which results in reduction of weight. Following these few days of weight loss, there would be gradual weight gain. By day 14, most babies would be above their birth weight.</p>
84.	<p>A 7 year old girl is brought by her mother with bright red staining of her underpants. She gives a history that her daughter recently started taking horse riding lessons. What is the SINGLE next most appropriate action?</p> <p>A. Examination of genitalia in clinic B. Examination of genitalia under general anaesthesia C. Reassure and discharge D. Inform child protection services E. Colposcopy</p>



	<p>The likely diagnosis here is a perforated hymen given the history of horse riding. There is no need for a general anaesthesia at this point as she is only having red staining. One must remember that general anaesthesia has its own complications and should not be used without reason.</p> <p>An attempt to examine in clinic without anaesthesia would be the preferred method. It is extremely important to reassure, explain the examination and show equipment as this will help diminish fears and anxiety of the child. Ensure the child's privacy and stop the examination at any time provided the child indicates discomfort or withdraws permission to continue. It is a good idea to examine small children while on their mother's lap or lying with her on a couch as to provide extra comfort.</p> <p>When should we consider general anaesthesia?</p> <p>If the child refuses the examination and conditions requiring medical attention, such as bleeding or a foreign body, are suspected.</p>
85.	<p>An 8 year old child has recurrent throat infections. He feels tired and lethargic all the time. Petechiae is noticed on his lower limbs. On examination, splenomegaly and gum hypertrophy was noted. Blood results show:</p> <p>Hb 6.8g/dl WCC $7 \times 10^9/L$ Platelets $75 \times 10^9/L$.</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Acute lymphoblastic leukaemia (ALL) B. Acute myeloid leukaemia (AML) C. Chronic myeloid leukaemia (CML) D. Chronic lymphocytic leukaemia (CLL) E. Hodgkin's lymphoma</p> <p>These symptoms that he is presenting with are due to pancytopenia. The likely cause given the options and his age is acute lymphoblastic leukaemia (ALL)</p> <p>The commonest leukaemia in children is acute lymphoblastic leukaemia (ALL)</p> <p><i>One needs to be careful with picking AML or ALL as there are often questions with a very similar stem. In reality, it is difficult to diagnose them clinically as well. For the purpose of the exam, if one sees a clinical picture of acute leukaemia in a very acute setting with bleeding from the gums, AML is likely to be the answer. On the other hand, if one sees a clinical picture of acute leukaemia but less acute and only with gum hypertrophy, ALL is likely to be the answer. - Can these differences actually be used in real life? Probably not</i></p> <p>Acute lymphoblastic leukaemia (ALL)</p>

**Aetiology**

Most cases of acute leukaemia arise with no apparent cause. There are several well known associations with the development of acute leukaemia that are sometimes present. These include radiation exposure, chemotherapeutic agents, as well as some retroviruses.

Clinical Presentation

The most common presentation results from the effects of the leukaemic blast cells crowding out the normal marrow cells, resulting in symptoms of pancytopenia even if the total white blood cell count is normal.

- Fatigue from anaemia is the most common presenting complaint.
- Bleeding, petechiae, purpura or ecchymoses (due to thrombocytopenia)
- Recurrent and severe infections (oral, throat, skin, perianal infections commonly). This is because of the underproduction or abnormal function of white blood cells.
- Left upper quadrant fullness and early satiety due to splenomegaly (10-20%)

Acute lymphocytic leukaemia (ALL) is more common in children, and acute myelogenous leukaemia (AML) is more common in adults, but they are indistinguishable clinically. This means you cannot determine the diagnosis only from the clinical presentation.

ALL is more often associated with infiltration of other organs, but AML can do it as well. Enlargement of the liver, spleen, and lymph nodes and bone pain are common at presentation.

Diagnosis

The FBC is the first clue to the diagnosis. Depression of all three cell lines is common at presentation.

FBC

- Anaemia is usual and Hb may be below 5 g/L
- The white cell count can be low, normal, or elevated
- Thrombocytopenia

Many other disorders can present as pancytopenia similar to leukaemia such as aplastic anaemia, infections involving the marrow, metastatic cancer involving the marrow, vitamin B12 deficiency, SLE, hypersplenism, and myelofibrosis. However, none of these will have leukaemic blasts circulating in the peripheral blood. Although pancytopenia can cause all of the above, in PLAB, when pancytopenia is in the options, it is usually leukaemia, or aplastic anaemia.

A bone marrow biopsy showing numerous blasts confirms the diagnosis of acute leukaemia.

It is very unlikely that the PLAB questions would ask you to differentiate the AML from ALL using specific test. However, if a child (young age) is given with signs and symptoms of pancytopenia, ALL would be the most likely as it is the commonest childhood leukaemia.



	<p>Note:</p> <ul style="list-style-type: none">- ALL is the commonest childhood leukaemia. Peak age is 2–4 years old.- The Philadelphia chromosome occurs in 15–30% (mostly adults) and is associated with a poor prognosis.
86.	<p>A 9 year old patient attends the outpatient department with complains of fever, malaise, weight loss, anorexia and productive cough. Examination reveals a temperature of 39.1°C, and a pulse of 120 beats/minute. His mother says that he has a history of recurrent chest infections since young. What is the SINGLE most likely causative organism?</p> <p>A. Pneumococcal pneumonia B. Staphylococcus aureus C. Mycobacterium tuberculosis D. Pseudomonas aeruginosa E. Pneumocystis pneumonia</p> <p>This is a very vague question. The stem does give some hint of a diagnosis of cystic fibrosis given the history of the recurrent chest infections. It is important to note that the diagnosis of cystic fibrosis is usually made within the first 6 months of life, however over the past decade the diagnosis of cystic fibrosis later in life has been reported with increasing frequency.</p> <p>Organisms which frequently colonise CF patients:</p> <ul style="list-style-type: none">- Staphylococcus aureus- Pseudomonas aeruginosa- Aspergillus <p>While it is a known fact that Pseudomonas infections are known as opportunistic meaning the bacteria only cause infections when a person has CF or another condition that weakens the body's immune system, it is not actually the most frequent chest infection in cystic fibrosis patients. Pseudomonas is one of the most common bacteria found in people with CF but Staphylococcus aureus (SA) is the most prevalent organism infecting the respiratory tract of CF children, and remains the second most prevalent organism in CF adults.</p>
87.	<p>A 5 year old girl is being investigated for renal failure. She has a history of urinary tract infections in the pass. A congenital abnormality of the insertion of ureters into the urinary bladder was seen on scan. What is the single most likely cause for renal failure in this patient?</p> <p>A. Systemic Lupus Erythematosus B. Polycystic kidney disease C. Wilms' tumour D. Acute tubular necrosis E. Reflux nephropathy</p>



	<p>Reflux nephropathy is a progressive lesion caused by repeated kidney infections. It is due to urine flowing backwards from the bladder to kidneys (vesicoureteral reflux). It is almost always found in childhood in the context of an abnormal urinary tract like in this stem.</p>
88.	<p>A 3 year old boy who has had frequent urinary tract infections has recently been diagnosed with vesicoureteral reflux. Which of the statements are correct?</p> <p>A. Antibiotic prophylaxis is first line B. Most children with vesicoureteral reflux will require surgery C. Most children with vesicoureteral reflux will have kidney scarring by age 5 D. Antibiotic use has not been shown to reduce renal scarring E. Surgical correction should only be considered in patients with low-grade reflux</p> <p>Antibiotic prophylaxis should be given prior to considering surgery. When medical management fails to prevent recurrent urinary tract infections, or if the kidneys show progressive renal scarring then surgical interventions may be necessary. Surgical corrections are generally reserved for the higher grade refluxes (not low-grade). The main idea of antibiotic prophylaxis is to reduce risk of urinary tract infection and thus reduce renal scarring.</p> <p>Vesicoureteral reflux</p> <ul style="list-style-type: none">- Condition where urine flows retrograde from bladder into ureters/kidneys <p>Presentation</p> <ul style="list-style-type: none">- Most children are asymptomatic- Increases risk of urinary tract infection → Thus, symptoms of a UTI:<ul style="list-style-type: none">o Fevero Dysuriao Frequent urinationo Lower abdominal pain <p>Diagnosis</p> <ul style="list-style-type: none">- Urinalysis, urine culture and sensitivity → initial investigation- Renal ultrasound → initial investigation → might suggest the presence of VUR if ureteral dilatation is present- Micturating cystourethrogram → gold standard- Technetium scan (DMSA) → for parenchymal damage (seen as cortical scars) <p>Treatment</p> <ul style="list-style-type: none">- VUR grade I-IV - start with low dose antibiotics prophylaxis daily (i.e. trimethoprim)- If above fails and/or parenchymal damage consider surgery - reimplantation of the ureters <p>The International Reflux Study has found that children can be managed nonsurgically with little risk of new or increased renal scarring, provided they are maintained infection free. Remember, the goal of treatment is to minimize infections, as it is infections that cause renal</p>



	<p>scarring and not the vesicoureteral reflux. Thus, the importance of continuous antibiotic prophylaxis outweighs surgery in most cases. Note that during early childhood, the kidneys are at higher risk of developing new scars. So it is particularly important to start parenteral antibiotic treatment for patients with vesicoureteral reflux before febrile breakthrough infections.</p> <p>For patients with frequent breakthrough infections, definitive surgical or endoscopic correction is preferred. Surgical correction should also be considered in patients with persistent high-grade reflux (grades IV/V) or abnormal renal parenchyma.</p>
89.	<p>A 4 year old child presents to A&E with fever and stridor. He is unable to swallow his saliva. He has a respiratory rate of 45 breaths/minute. What is the SINGLE most appropriate next step in management?</p> <p>A. Examine his throat B. Secure his airways C. Keep him in a supine position D. Administer intravenous penicillin E. Administer intramuscular epinephrine</p> <p>The clincher here is the unable to swallow his saliva. If you find any questions with a child with drooling of saliva. It is likely that this is acute epiglottitis, Summon the most experienced anaesthetist to intubate before obstruction occurs. In the above options, securing the airways is the most appropriate.</p> <p>Acute epiglottitis</p> <ul style="list-style-type: none">- Now rare due to the introduction of Hib vaccine. However, it is still a serious infection. Prompt recognition and urgent treatment is essential- Caused by Haemophilus influenzae type B <p>Features</p> <ul style="list-style-type: none">- Rapid onset- High temperature- Stridor- Drooling of saliva- Difficulty speaking- Muffling or changes in the voice



- 90.** A 2 year old child is brought to the hospital by his mother with a barking cough. A few days ago he had a runny nose, cough and a sore throat. His chest sounds are normal and there are no signs of intercostal recession. He looks drowsy and lethargic. He has a temperature of 38.7°C, respiratory rate of 34 breaths/minute, pulse rate of 150 beats/minute and his oxygen saturation on air is 96%. What is the SINGLE most appropriate management?

A. Oral dexamethasone

- B. Oxygen
C. Nebulised salbutamol
D. Antibiotics
E. Nebulised adrenaline

Barking cough is a clincher that tells you this is croup. Croup is a form of upper respiratory tract infection seen in infants and toddlers with peak incidence at 6 months to 3 years. Parainfluenza viruses account for the majority of cases (more than 80% of cases).

The illness usually last around 3 to 5 days involving features of stridor, barking cough, fever (mild temperature) and coryzal symptoms.

Giving a single dose of oral dexamethasone (0.15mg/kg) to all children regardless of severity is recommended. In this stem, it is clear that he has mild croup. Mild croup is largely self-limiting but treatment with a single dose of oral dexamethasone would be of benefit.

Emergency treatment of croup involves giving high-flow oxygen and nebulised adrenaline. In this stem, his oxygen saturation is not low and thus he will not benefit from oxygen. Nebulised adrenaline (epinephrine) is usually reserved for patients in moderate-to-severe distress which in this stem the child is not.

- 91.** A 13 month old female baby presents to the emergency department with difficulty in breathing. On examination, she has intercostal recessions and a bilateral widespread wheeze. Her temperature is 37.9°C and respiratory rate is 35 breaths/minute. What is the SINGLE most likely diagnosis?

- A. Bacterial upper respiratory tract infection
B. Pneumonia
C. Bronchiolitis
D. Respiratory distress syndrome
E. Alpha 1 antitrypsin deficiency

Bronchiolitis is very common in infants and young children. Their early symptoms are of those of a viral upper respiratory tract infection including mild rhinorrhoea, cough and fever. The fever is usually high (above 39°C) however in this stem a temperature of 37.9°C is given. Do not let that fool you into thinking that it is not an infective cause. Other symptoms of bronchiolitis include wheeze. Occasionally, one may find symptoms of cyanosis and poor feeding in the stem.

**Bronchiolitis**

- An acute infectious disease of the lower respiratory tract that occurs primarily in the very young, most commonly infants between 2 and 6 months old
- Respiratory syncytial virus (RSV) is the pathogen in 75-80% of cases

It is a clinical diagnosis based upon:

- Breathing difficulties
- Cough
- Coryzal symptoms (including mild fever)
- Decreased feeding
- Apnoeas in the very young
- Wheeze or fine inspiratory crackles on auscultation

Management

- Largely supportive involving humidified oxygen

SAMPLE



SAMPLE



PHARMACOLOGY

SAMPLE



1.	<p>Which of the following drugs can cause bronchoconstriction?</p> <p>A. Atenolol B. Salbutamol C. Salmeterol D. Ipratropium bromide E. Theophylline</p> <p>Atenolol is a beta blocker. Beta blockers are known to cause bronchoconstriction.</p> <p>Salbutamol and salmeterol are beta agonist. They are used to treat bronchospasm thus they have bronchodilating effects.</p> <p>Ipratropium bromide inhibits bronchoconstriction</p> <p>Theophylline also relaxes the bronchial smooth muscle causing bronchodilation.</p>
2.	<p>A 68 year old male patient is on Ramipril 10mg daily and Bendroflumethiazide 2.5mg daily for hypertension. He has come for his routine checkup with a blood pressure of 135/85 mmHg. His blood tests shows:</p> <p>Serum potassium level 5.9 mmol/L Serum sodium 126 mmol/L Serum creatinine 79 μmol/L</p> <p>What is the SINGLE most likely side effect of thiazide diuretics which contributed to his blood results?</p> <p>A. Hypocalcaemia B. Hyponatraemia C. Hypouricemia D. Hyperkalaemia E. Hypernatraemia</p> <p>One of the many known adverse effects of thiazides is postural hypotension.</p> <p>Common adverse effects of thiazides worth remembering include:</p> <ul style="list-style-type: none">- postural hypotension- hyponatraemia, hypokalaemia- gout



3. A 30 year old lady comes to the emergency department with palpitations and chest pain. ECG shows sinus tachycardia. Her pulse rate is 110 beats/minute. She has a history of asthma and her GP recently changed her medications. What is the SINGLE most appropriate management?
- A. Atenolol
B. Digoxin
C. Review medications
D. Lidocaine
E. Labetalol
- She most likely started a beta agonist to treat her asthma which is known to cause tachycardia.

4. A 32 year old man on psychiatric medications complains of the inability to ejaculate. What is the SINGLE most likely medication he is taking?
- A. Lithium
B. Haloperidol
C. Chlorpromazine
D. Fluoxetine
E. Clozapine
- Sexual dysfunction is a common symptom of depression. However, in addition to this, all antidepressants can cause sexual dysfunction to varying degrees (most commonly serotonin reuptake inhibitors).

Drug	Prevalence	Type of problem experienced
Selective serotonin inhibitors (SSRIs)	60-70%	All phases of the sexual response. Paroxetine is associated with more erectile dysfunction and vaginal dryness than other SSRIs.
Tricyclic antidepressants (TCAs)	30%	Decreased libido, erectile dysfunction, delayed orgasm, and impaired ejaculation.
Venlafaxine	70%	Decreased libido, delayed orgasm, and erectile dysfunction. Rarely painful ejaculation and priapism.
Mirtazapine	25%	Decreased libido, delayed orgasm,



			erectile dysfunction, absence of orgasm.	
	Reboxetine	5-10%	Orgasm abnormalities.	
	Duloxetine	46%	Delayed orgasm.	
	Irreversible monoamine oxidase inhibitors (MAOIs)	40%	Decreased libido, erectile dysfunction, delayed orgasm, and impaired ejaculation. Moclobemide is less likely to cause sexual dysfunction compared with older MAOIs (4% versus 40%).	
5.	<p>A 5 year old boy was rushed to the emergency department unconscious after he had taken methadone belonging to his sister. He was given naloxone and he regained consciousness. After a while he started getting drowsy again. What is the SINGLE most likely reason for his drop in level of consciousness?</p> <p>A. Naloxone is absorbed faster than methadone B. Methadone is absorbed faster than naloxone C. Methadone increases elimination of naloxone D. Methadone has already caused tissue damage E. Naloxone has a shorter half-life compared to methadone</p> <p>Naloxone has a shorter plasma half-life than all of opioid analgesics and so coma and respiratory depression often recur when naloxone wears off. Careful observation of the patient is essential and repeated doses of naloxone may be needed.</p>			
6.	<p>A 45 year old diabetic man had recently started taking anti-hypertension therapy. 6 months later his fasting blood glucose is 14 mmol/l. What is the SINGLE most likely medication that would have caused this?</p> <p>A. Amlodipine B. Bendroflumethiazide C. Doxazosin D. Losartan E. Ramipril</p> <p>The potential adverse metabolic effects of thiazide and thiazide-like therapy include elevations in the plasma glucose. Bendroflumethiazide may lower carbohydrate tolerance and the insulin dosage of some diabetic patients may require adjustment. Care is required when bendroflumethiazide is administered to patients with a known predisposition to diabetes</p>			



7.	<p>A 65 year old man with hypertension develops gingival hyperplasia. What is the SINGLE most likely medication causing the gingival hyperplasia?</p> <p>A. Ramipril B. Metoprolol C. Spironolactone D. Nifedipine E. Indapamide</p> <p>Gingival hyperplasia is a recognized side effect of calcium channel blockers</p>
8.	<p>A 60 year old man developed ankle swelling shortly after starting antihypertensive medication. What is the SINGLE most likely antihypertensive medication which could account for his symptoms?</p> <p>A. Bendroflumethiazide B. Bisoprolol C. Diltiazem D. Furosemide E. Captopril</p> <p>One of the known side effects of calcium channel blockers is swelling of the ankle. Calcium channel blockers widen the narrow blood vessels (vasodilation), causing redistribution of fluid from the vascular space, and for some people, this can cause more fluid to leak out of the blood into the tissues around the ankle resulting in swelling.</p> <p>Calcium channel blockers can be divided into two types, the dihydropyridines, which are predominantly vasodilator and generally have neutral or increased effects on vascular permeability (Amlodipine and Nifedipine); and the non-dihydropyridines (verapamil and diltiazem) which reduce vascular permeability and affect cardiac contractility and conduction. All of these can cause ankle swelling.</p>
9.	<p>A 35 year old man with a history of alcohol abuse has oedema and ascites demonstrated by shifting dullness. Spider naevi is noted on his trunk. Paracentesis shows clear fluid. He has a temperature of 37.2°C, a pulse of 85 beats/minute, a blood pressure of 119/85 mmHg and a respiratory rate of 20 breaths/minute. What is the SINGLE most appropriate medication to start?</p> <p>A. Corticosteroid B. Azathioprine C. Spironolactone D. Cholestyramine E. Penicillamine</p> <p>Oedema and fluid overload in third spaces, such as ascites, are managed with diuretics. The diuretic most useful in cirrhosis is spironolactone. This is because cirrhotics have</p>



	<p>intravascular volume depletion, which results in a high aldosterone state. Spironolactone is an aldosterone antagonist.</p> <p>Common indications of spironolactone</p> <ul style="list-style-type: none">- Ascites: patients with cirrhosis develop a secondary hyperaldosteronism.- Hypertension: used as one of the last treatment options (in a 'step 4' treatment)- Heart failure- Nephrotic syndrome
10.	<p>56 year old man whose pain was relieved by oral Morphine, now presents with progressively worsening pain. Increasing the dose of oral morphine helps to relieve his pain. However, he now complains that the increased morphine makes him drowsy and he is unable to carry out his daily activities. What is the SINGLE most appropriate next step?</p> <p>A. Replace oral morphine with oral oxycodone B. Replace oral morphine with oral tramadol C. Patient-controlled analgesia (PCA) D. Intravenous fentanyl E. Intravenous diamorphine</p> <p>In general, oxycodone should be used when patients are still in pain but have side effects of opioids. This is because oxycodone has twice the potency of morphine to manage pain but with lesser side effects compared to morphine.</p> <p>The pain ladder consist of 3 steps: 1: Simple analgesia like paracetamol. Aspirin, NSAIDs +/- adjuvant therapy 2: Weak opiates: e.g codeine, tramadol, dihydrocodeine +/- adjuvant therapy 3. Strong opiates: morphine, fentanyl patches, diamorphine, oxycodone +/- adjuvant therapy.</p> <p>If patient is still in pain, you should never go back a step on the pain ladder, only go forward.</p>
11.	<p>A 34 year old man suffers from depression. He was recently started on sertraline by his GP. When can a therapeutic response of sertraline be seen?</p> <p>A. 1-2 hours B. 1-2 days C. 1-2 weeks D. 1-2 months E. 1-2 years</p> <p>The onset of therapeutic effect of Sertraline may be seen within 7 days. However, longer periods are usually necessary to demonstrate an appropriate therapeutic response.</p> <p>In general, an antidepressant effect is usually seen within 2 weeks of starting treatment. If no effect is seen after 2-4 weeks, adherence should be assessed.</p>



12.	<p>A patient has recently been diagnosed with Bipolar Disorder and is to be put on Lithium therapy. Her renal function and liver function tests are normal. What is the SINGLE other test you need to do before commencing her on Lithium?</p> <p>A. Renal biopsy B. Autoimmune screen C. Fluid restriction test D. Urine for glucose E. Thyroid function tests</p> <p>Important tests to do before commencing Lithium therapy</p> <ul style="list-style-type: none">- Weight, pulse and blood pressure- Renal function (primary excretion route)- Full blood counts, U&E- Thyroid function tests and calcium- Baseline ECG- Baseline parathyroid hormone and magnesium <p>As this patient has already had baseline renal function and liver function tests, the next best test to do would be thyroid function tests (especially measurement of T4). As Lithium can cause disease of the thyroid, it is important to exclude hypothyroidism or hyperthyroidism in a patient before commencing Lithium therapy.</p>
13.	<p>A 72 year old woman who is taking loop diuretics is suffering from palpitations and muscle weakness. What is the SINGLE most likely electrolyte imbalance to be found?</p> <p>A. Sodium 130 mmol/L, potassium 2.5 mmol/L B. Sodium 130 mmol/L, potassium 5.5 mmol/L C. Sodium 140 mmol/L, potassium 4.5 mmol/L D. Sodium 150 mmol/L, potassium 3.5 mmol/L E. Sodium 150 mmol/L, potassium 5.6 mmol/L</p> <p>Loop diuretics</p> <p>The 3 main points that you need to know about loop diuretics are that it may cause:</p> <ol style="list-style-type: none">1. Hypokalaemia2. Hyponatraemia3. Gout <p><i>Mnemonic: LOOP → HypOOnatraemia, HypOOkalaemia, GOOut</i></p>



14.	<p>A 55 year old man on hypertension medications develops hyperkalaemia. What is the SINGLE most likely anti-hypertension to cause it?</p> <p>A. Nifedipine B. Indapamide C. Bendroflumethiazide D. Enalapril E. Amlodipine</p> <p>ACE-inhibitors can cause hyperkalemia. Concomitant treatment with NSAIDs increases the risk of renal damage, and potassium-sparing diuretics increase the risk of hyperkalaemia. It would be a good idea to recognise some common ACE inhibitors - Ramipril, Enalapril, Captopril, Perindopril and Lisinopril.</p> <p>If there is no option for ACE inhibitors, then Angiotensin-II receptor blockers (ARBs) would be the next best option as these can too cause hyperkalaemia. Common ARBs to know are Losartan, Candesartan, and Valsartan.</p>
15.	<p>A 78 year old man who was previously on 120 mg slow release oral morphine and paracetamol 1g QDS had his dose increased to 200 mg slow release oral morphine. He is still in significant pain but complains of drowsiness and constipation. What is the SINGLE most appropriate step in the management?</p> <p>A. Increase slow release morphine dose B. Fentanyl patch C. Replace morphine with oral hydromorphone D. Replace morphine with oxycodone E. Subcutaneous morphine</p> <p>In general, oxycodone should be used when patients are still in pain but have side effects of opioids. This is because oxycodone has twice the potency of morphine to manage pain but with lesser side effects compared to morphine.</p> <p>The pain ladder consist of 3 steps: 1: Simple analgesia like paracetamol. Aspirin, NSAIDs +/- adjuvant therapy 2: Weak opiates: e.g codeine, tramadol, dihydrocodeine +/- adjuvant therapy 3. Strong opiates: morphine, fentanyl patches, diamorphine, oxycodone +/- adjuvant therapy.</p> <p>If patient is still in pain, you should never go back a step on the pain ladder, only go forward.</p>



16.	<p>A 24 year old woman was prescribed amoxicillin for an episode of otitis media. She has been using the combined oral contraceptive pill as a form of contraception for the past two years. What is the SINGLE most appropriate advice to give her with regards to antibiotic use and taking the COCP?</p> <p>A. Barrier contraception should be used for 6 weeks B. Barrier contraception should be used until the course of antibiotics is complete C. No additional precaution is needed D. Barrier contraception plus spermicide should be used E. Stop COCP and use alternate contraceptive method</p> <p>According to latest recommendations, no additional contraceptive precautions are necessary when antibiotics that do not induce liver enzymes are used together with combined oral contraceptives, unless diarrhoea or vomiting occur</p>
17.	<p>A 60 year old man has had spontaneous painful swelling of his right thumb for 3 days. About five days ago, he had an inguinal hernia repaired as a day case. He takes bendroflumethiazide 2.5mg daily. He is afebrile. What is the SINGLE most appropriate diagnostic investigation?</p> <p>A. Blood culture B. C-reactive protein (CRP) C. D-dimer D. X-ray hand E. Serum uric acid</p> <p>Bendroflumethiazide may raise serum uric acid levels and exacerbate gout in susceptible individuals.</p>
18.	<p>A 72 year old man has been on warfarin for the last 2 years because of a previous transient ischaemic attack and stroke. He is not on any other medication. Which SINGLE symptom would be the most alarming?</p> <p>A. Severe headache B. Sore throat C. Constipation D. Calf tenderness E. Diarrhoea</p> <p>Headache which may result from intracranial haemorrhage due to Warfarin is the most important adverse effect - and patients should be counselled to report any unusual or persistent headaches whilst taking Warfarin.</p>



19.	<p>A 74 year old man has been taking Warfarin 7mg daily for the treatment of left arm DVT with an INR target of 2-3 for the past two years. He also takes Furosemide 40 mg daily, Diprobace cream and Co-dydramol when required for pain relief. He is usually compliant with his medications. What is the SINGLE most important adverse effect the patient should be careful with?</p> <p>A. Peripheral Neuropathy B. Phototoxicity C. Headache D. Constipation E. Persistent cough</p> <p>Headache which may result from intracranial haemorrhage due to Warfarin is the most important adverse effect - and patients should be counselled to report any unusual or persistent headaches whilst taking Warfarin.</p>
20.	<p>A 63 year old man presented with sudden onset of severe dyspnoea, orthopnea, raised jugular venous pressure and bilateral basal crackles three days after an episode of myocardial infarction. A diagnosis of acute congestive cardiac failure was made and intravenous furosemide was started. What is the SINGLE most likely electrolyte abnormality to be expected?</p> <p>A. High sodium, Low potassium B. Low sodium, High potassium C. Low sodium, Low potassium D. High sodium, High potassium E. Low sodium, Normal potassium</p> <p>Furosemide is a loop diuretic.</p> <p>Loop diuretics</p> <p>The 3 main points that you need to know about loop diuretics are that it may cause:</p> <ol style="list-style-type: none">1. Hypokalaemia2. Hyponatraemia3. Gout <p><i>Mnemonic: LOOP → HypOOnatraemia, HypOOkalaemia, GOOut</i></p>



21.	<p>A 37 year old female patient has been taking Doxycycline 100mg daily for acne for the past two weeks. She complains of feeling nauseous and having frequent diarrhoea since starting the medication. She has no known allergies and occasionally buys paracetamol over the counter. What is the SINGLE most appropriate advice to be given to this patient?</p> <p>A. Stop Doxycycline B. Take it with meals C. Take it before meals D. Take antacids E. Take antiemetics</p> <p>Side effects known to Doxycycline include headache, nausea, diarrhoea, vomiting, and oesophageal irritation. These side effects can be minimised by advising patients to swallow Doxycycline capsules as a whole, while sitting or standing, with a full glass of water with meals.</p>
22.	<p>A 7 year old child presented with a red, circular shaped rash on his skin. He was prescribed Fucidin cream for 7 days to be applied but the rashes did not improve. He is complaining of itch around the area where the rashes appear. What is the SINGLE next best choice of medication to be prescribed?</p> <p>A. Betamethasone cream B. Clotrimazole cream C. Hydrocortisone cream D. Urea 10% cream E. Coal tar cream</p> <p>Fucidin cream is an antibacterial cream (fusidic acid). If after a week, this has no response then it is most likely a fungal infection on the skin. The red, circular and itchy rash is most probably a ringworm infection which should respond to Clotrimazole cream.</p>
23.	<p>A 25 year old man has been suffering from breathlessness and wheeze for the last 3 months. He has been prescribed Salbutamol inhaler, to take 2 puffs as required. In the last 2 weeks his symptoms have worsened and he has been using his Salbutamol inhaler five times a week, more frequently during the day. He also complains of difficulty sleeping at night due to excessive coughing and breathlessness. What is the SINGLE best medication to be added onto his regime?</p> <p>A. Theophylline B. Salmeterol inhaler C. Beclomethasone inhaler D. Montelukast tablet E. Salbutamol tablet</p> <p>According to the British Thoracic Society (BTS) Asthma guideline, the patient is currently on Step 1. As his asthma is not controlled (i.e. he is using his Salbutamol inhaler more than</p>



	three doses per week), he should be moved up to Step 2 which is regular low dose corticosteroid inhaler.
24.	<p>A 45 year old man has recently had an anterior resection of the rectum. Postoperatively, he was on oxycodone which controlled the pain. He started vomiting several times on the second day and a mild intestinal obstruction is suspected. What is the SINGLE most appropriate management for his pain?</p> <p>A. Switch oral oxycodone to fentanyl patch B. Switch oral oxycodone to intramuscular morphine C. Switch oral oxycodone to intravenous morphine D. Switch oral oxycodone to intramuscular codeine phosphate E. Switch oral oxycodone to oral codeine</p> <p>Intravenous morphine would be the most suitable as he is not able to tolerate opioids orally due to the vomiting.</p> <p>There is no rational behind picking fentanyl patch as an option. Whilst it is true that if the pain is stable and oral route is no longer appropriate (e.g. vomiting), fentanyl patches are a good choice however, the pain here is not stable. The pain was well controlled with oral oxycodone of which he has now started to vomit out. It is obvious that he will be in pain again. Fentanyl is a strong opioid. Due to its long half-life, it will take at least 12 to 24 hours to achieve therapeutic drug levels and so is only of benefit in patients with stable pain. If you had given this to the patient, he would be in severe pain for several hours while waiting for the therapeutic drug levels to kick in.</p> <p>Fentanyl patches are usually used in cancer patients who have stable pain who are not able to tolerate oral medication.</p> <p>It is not reasonable to use constipation as an excuse in this example to avoid the use of intravenous morphine. The bottom line is constipation can be prevented or greatly reduced with laxatives but postoperative pain cannot be relieved with a slow releasing transdermal patch.</p>



SAMPLE



PSYCHIATRY

SAMPLE



1. A 38 year old man has disturbing thoughts about his house being infected by germs. He is anxious about safety and checks the locks of his doors repeatedly before going to bed. He has been washing his hands every time he touches the lock. This can be 5 to 10 times an hour. What is the SINGLE most appropriate management?

- A. Antidepressant
- B. Antipsychotic
- C. Anxiolytic
- D. Cognitive behavioural therapy**
- E. Psychodynamic psychotherapy

The diagnosis here is obsessive-compulsive disorder (OCD). Exposure and response prevention (ERP) is included in cognitive behavioural therapy (CBT) in treatment for those who present with OCD. The method is predicated on the idea that a therapeutic effect is achieved as subjects confront their fears and discontinue their escape response. In this case, the patient would be exposed to his feared stimulus, and would refuse to respond with any safety behaviors.

SSRIs are also a treatment choice for OCD. But as this is only a mild functional impairment, ERP would be a more appropriate answer. NICE CKS has very specific guidelines for obsessive-compulsive disorder (OCD)

In the initial treatment of adults with OCD, low intensity psychological treatments (including Exposure and Response Prevention (ERP)) should be offered if the patient's degree of functional impairment is mild and/or the patient expresses a preference for a low intensity approach. Low intensity treatments include brief individual or group CBT (including ERP)

Adults with OCD with mild functional impairment who are unable to engage in low intensity CBT (including ERP), or for whom low intensity treatment has proved to be inadequate, should be offered the choice of either a course of an SSRI or more intensive CBT (including ERP).

Obsessive-compulsive disorder (OCD)

A common, chronic condition, often associated with marked anxiety and depression, characterized by 'obsessions'.

It is characterized by recurrent obsessions or compulsions that are recognized by the individual as unreasonable. Obsessions are anxiety-provoking, intrusive thoughts, commonly concerning contamination, doubt, guilt, aggression, and sex. Compulsions are peculiar behaviors that reduce anxiety, commonly hand-washing, organizing, checking, counting, and praying.

Management

CBT is recommended by NICE, but essentially takes a behavioural approach, including exposure and response prevention (ERP).



	<p>SSRIs (licensed): escitalopram, fluoxetine, sertraline or paroxetine should be considered first-line (no clear superiority of any one agent). Other (unlicensed) agents include citalopram</p> <p>For PLAB, electroconvulsive therapy (ECT) would be the answer for treatment of OCD, If the patient is suicidal or severely incapacitated</p>
2.	<p>A 57 year old man had a myocardial infarction 6 months ago. He has been having low moods since then and a diagnosis of moderate depression has been established. Which is the SINGLE most appropriate medication to start him on?</p> <p>A. Selective serotonin reuptake inhibitors B. Tricyclic antidepressants C. Monoamine oxidase inhibitors D. Benzodiazepam E. Mood stabilizer</p> <p>For majority of patients with moderate depression, selective serotonin reuptake inhibitors (SSRIs) are considered first-line If this question gave you options of SSRIs, Sertraline would be the best answer to pick as sertraline has good safety profile with patients with myocardial infarction. The other antidepressants have not been studied enough in context of myocardial infarction however citalopram has gained popularity and is also considered safe for use in patients with depression with a history of myocardial infarction</p> <p>Citalopram and fluoxetine are the preferred SSRIs if there is no relevant past medical history.</p>
3.	<p>A 27 year old woman is afraid to go out of her house into public places. Everytime she travels using public transport she becomes breathless and has palpitations. What is the SINGLE most likely diagnosis?</p> <p>A. Social phobia B. Claustrophobia C. Arachnophobia D. Acrophobia E. Agoraphobia</p> <p>The answer here is agoraphobia as she has a fear of going out into the open.</p> <p>Agoraphobia → Fear of open spaces Social phobia (Social Anxiety Disorder) → persistent fear and anxiety about one or more social or performance situations Claustrophobia → irrational fear of confined spaces Arachnophobia → fear of spiders Acrophobia → fear of heights</p>



	<p>Agoraphobia Means "fear of open spaces"</p> <p>Many people assume agoraphobia is simply a fear of open spaces, but it's actually a more complex condition. Someone with agoraphobia may be scared of:</p> <ul style="list-style-type: none">• travelling on public transport• visiting a shopping centre• leaving home• <p>A clinical definition is "a fear of open spaces, especially those in which getaway may be difficult, which leads to avoidance of the situation". Being in these provoking situation usually leads to an anxiety attack. It is also associated with places or situations where escape may be difficult or embarrassing (e.g. of crowds, public places, travelling alone or away from home).</p> <p>If someone with agoraphobia finds themselves in a stressful situation, they'll usually experience the symptoms of a panic attack, such as:</p> <ul style="list-style-type: none">• palpitations• hyperventilating• sweating <p>Some patients can manage to continue their daily lives (with difficulty), whilst others are severely affected and may even become incapacitated.</p>
4.	<p>A 37 year old woman believes that her neighbours have been using her shower while she is away at work. She is convinced that they dry the bathroom and escape just before she goes into the bathroom. Her husband comes to share the same belief and informs the police. What is the SINGLE most appropriate term for these symptoms?</p> <p>A. Capgras syndrome B. Cotard syndrome C. Persecutory delusions D. Folie à deux E. Munchausen's syndrome</p> <p>Folie à deux is the best term to describe this. It is symptoms of a delusional belief and hallucinations that are transmitted from one individual to another usually by two people in a close relationship like in this case, husband and wife.</p> <p>Folie à deux → is French for "madness of two". It is a situation where two people with a close relationship share a delusional belief. This arises as a result of a psychotic illness in one individual with development of a delusional belief, which comes to be shared by the second. The delusion resolves in the second person on separation, the first should be assessed and treated in the usual way.</p>



	<p>Capgras syndrome → A type of delusional misidentification in which the patient believes that a person known to them has been replaced by a 'double' who is to all external appearances identical, but is not the 'real person'.</p> <p>Cotard syndrome → is a presentation of psychotic depressive illness characterised by a combination of severely depressed mood with nihilistic delusions. The patient may state that he is already dead and should be buried. He may state that his insides have stopped working and are rotting away, or that he has stopped existing altogether.</p> <p>Persecutory delusion → is a delusional belief that one's life is being interfered with in a harmful way. It refers to false beliefs or perceptions in which a person believes that they are being treated with malicious intent, hostility, or harassment despite significant evidence to suggest otherwise. This may occur in the context of being tormented, followed, or spied on.</p> <p>Munchausen's syndrome → also known as factitious disorder. Patients intentionally falsify their symptoms and past history and fabricate signs of physical or mental disorder with the primary aim of obtaining medical attention and treatment. The diagnostic features are the intentional and conscious production of signs, falsification, or exaggeration of the history and the lack of gain beyond medical attention and treatment.</p>
5.	<p>A 24 year old depressed man has neglected his personal hygiene and physical health. He denies the existence of his bowels and believes that his bowels are blocked. He also believes that his limbs are missing and that no one cares about it. What SINGLE kind of delusion is he suffering from?</p> <p>A. Nihilistic delusions B. Delusion of guilt C. Persecutory delusion D. Frégoli delusion E. Clang association</p> <p>Nihilistic delusions → is the delusional belief that the patient has died or no longer exists or that the world has ended or is no longer real. Nothing matters any longer and continued effort is pointless. It is a feature of psychotic depressive illness. Patient may believe that he/she is dead and may ask people to bury them.</p> <p>Delusion of guilt → involves feeling guilty or remorseful for no valid reason. An example would be someone that believes they were responsible for a war in another country or hurricane damage in another state. The object of delusion believes that they deserve to be punished for their sins.</p> <p>Persecutory delusion → is a delusional belief that one's life is being interfered with in a harmful way. It refers to false beliefs or perceptions in which a person believes that they are being treated with malicious intent, hostility, or harassment despite significant evidence to suggest otherwise. This may occur in the context of being tormented, followed, or spied on.</p>



	<p>Frégoli delusion → is when a person holds a delusional belief that different people are in fact a single person who changes appearance or is in disguise.</p> <p>Clang association → is an abnormality of speech where the connection between words is their sound rather than their meaning. May occur during manic flight of ideas. Clang associations generally sound a bit like rhyming poetry, except that the poems don't seem to make any sense. Example, one may say “systematic, sympathetic, quite pathetic, apologetic, paramedic, your heart is prosthetic.</p>
6.	<p>A 26 year old woman has a history of bipolar disorder for 10 years and is taking lithium for it. She has been symptom free for the past 4 years. She is now planning her pregnancy and wants to know whether she should continue to take lithium. What is the SINGLE most appropriate advice?</p> <p>A. Continue lithium at the same dose and stop when pregnancy is confirmed B. Continue lithium during pregnancy and stop when breast feeding C. Reduce lithium dosage but continue throughout pregnancy D. Reduce lithium gradually and stop before pregnancy is confirmed E. Switch to sodium valproate</p> <p>Despite problems with tolerability, lithium still remains the gold standard in the treatment of bipolar affective disorder.</p> <p>Lithium is teratogen. If a woman taking lithium is planning a pregnancy, and is well and not at high risk of relapse, she should be advised to stop taking the drug because of the risk of cardiac malformations in the fetus. This should be done by gradual discontinuation before conception.</p> <p>Lithium should be reduced gradually over 1–3 months.</p>
7.	<p>A 22 year old woman was brought to the emergency department by her boyfriend with her fist bleeding after punching a mirror. She is distressed because he wants to end the relationship. Scars of old cuts on her forearms was noticed during a physical examination. She denies trying to end her life. What is the SINGLE most likely diagnosis?</p> <p>A. Acute psychosis B. Borderline personality disorder C. Severe depression D. Schizoid personality E. Psychotic depression</p> <p>Borderline Personality Disorder</p> <p>Usually characterized by mood swings, marked impulsivity, unstable relationships, and inappropriate anger. They can be very dramatic. They are usually attention seekers and may have multiple self-inflicted scars. They may threaten to commit suicide but do not actually attempt to do so.</p>



8.	<p>A 22 year old man was found overdosed on heroin. He has decreased respiratory rate and has lost consciousness. What is the SINGLE most appropriate management?</p> <p>A. Benzodiazepines B. Diazepoxide C. Naloxone D. Methadone E. Disulfiram</p> <p>Opiates overdose is treated with naloxone. It is given intravenously and repeated every 2 minutes until patient's breathing is adequate.</p>
9.	<p>A 45 year old woman presents with complaints of abdominal pain and blood in the stool. She brings the stool sample from home but has never been able to produce a sample at the hospital. A urinalysis was done which was negative. Her blood test are normal. This is the third time she is presenting to the hospital in the last month. On examination, multiple scars on the abdomen consistent with laparoscopies are seen. She insists on getting further investigations although no abnormalities are found. What is the SINGLE most likely diagnosis?</p> <p>A. Somatization disorder B. Hypochondriasis C. Munchausen's syndrome D. Conversion disorder E. Malingering</p> <p>Munchausen's syndrome would fit best. Likely she is inserting blood into her stools at home for medical attention. This can easily be done with a pin prick on the finger.</p> <p>Munchausen's syndrome → also known as factitious disorder. Patients intentionally falsify their symptoms and past history and fabricate signs of physical or mental disorder with the primary aim of obtaining medical attention and treatment. The diagnostic features are the intentional and conscious production of signs, falsification, or exaggeration of the history and the lack of gain beyond medical attention and treatment.</p> <p>Hypochondriasis → is the persistent belief in the presence of an underlying serious DISEASE, e.g. cancer or HIV. The patient again refuses to accept reassurance or negative test results.</p> <p>Somatization disorder → The experience of bodily symptoms with no physical cause for them, with presumed psychological causation.. The patient refuses to accept reassurance or negative test results</p> <p>Conversion (dissociative) disorders → typically involves loss or disturbance of normal motor or sensory function which initially appears to have a neurological or other physical cause but is later attributed to a psychological cause. The patient does not consciously feign the symptoms or seek material gain. Patients may be indifferent to their apparent disorder.</p>



	<p>Malingering → Deliberately falsifying the symptoms of illness for a secondary gain (e.g. for compensation, to avoid military service, or to obtain an opiate prescription).</p>
10.	<p>A 29 year old women diagnosed with schizophrenia is complaining that the children playing outside her garden can hear her thoughts. She says they know exactly what she is thinking at all times of the day. What is the SINGLE most likely phenomenon?</p> <p>A. Thought block B. Thought insertion C. Thought broadcasting D. Thought withdrawal E. Thought block</p> <p>Thought broadcasting is the delusional belief that one's thoughts are accessible directly to others. It is found in schizophrenia.</p> <p>Schizophrenia</p> <p>Features</p> <p>Auditory hallucinations:</p> <ul style="list-style-type: none">• third-person auditory hallucinations → voices are heard referring to the patient as 'he' or 'she', rather than 'you'• thought echo → an auditory hallucination in which the content is the individual's current thoughts• voices commenting on the patient's behaviour <p>Thought disorder:</p> <ul style="list-style-type: none">• thought insertion → The delusional belief that thoughts are being placed in the patient's head from outside• thought withdrawal → The delusional belief that thoughts have been 'taken out' of his/her mind• thought broadcasting → The delusional belief that one's thoughts are accessible directly to others• thought blocking → a sudden break in the chain of thought. <p>Passivity phenomena:</p> <ul style="list-style-type: none">• bodily sensations being controlled by external influence <p>Delusional perceptions</p> <ul style="list-style-type: none">• a two stage process where first a normal object is perceived then secondly there is a sudden intense delusional insight into the object's meaning for the patient e.g. 'The traffic light is green therefore I am the King'.



11.	<p>A 38 year old woman with episodes of mania followed by depression was started on medication. Improvement was seen and she no longer complains of these episodes. What is the SINGLE most likely medication that she was started on?</p> <p>A. Fluoxetine B. Lithium C. Lorazepam D. Haloperidol E. Amphetamine</p> <p>Bipolar affective disorder (commonly known as manic depression) Classically, periods of prolonged and profound <i>depression</i> alternate with periods of excessively elevated and irritable mood, known as <i>mania</i>.</p> <p>Most people who battle with the effects of the disorder would rather live a normal life, free from the unpredictability of mood swings, which most of us take for granted.</p> <p>The symptoms of mania characteristically include:</p> <ul style="list-style-type: none">• Decreased need for sleep• Pressured speech• Increased libido• Reckless behaviour without regard for consequences• Grandiosity• More talkative than usual <p>These symptoms of mania would alternate with depression</p> <p>Treatment Mood stabilizers (Lithium)- Despite problems with tolerability, lithium still remains the gold standard in the treatment of bipolar affective disorder.</p>
12.	<p>A couple attends a marriage counselling session because of marital problems. The wife states that her husband is having affairs although she has no proof of this. The husband states that she is “insane” because she is having him followed by a private detective and she is overly preoccupied about him being unfaithful. She goes through his personal belongings almost every day to look for signs of infidelity. Her actions are putting considerable strain on their marriage. What is the SINGLE most likely syndrome she is suffering from?</p> <p>A. Frégoli delusion B. Cotard syndrome C. Capgras syndrome D. Ekbom syndrome E. Othello syndrome</p> <p>Othello Syndrome → is a type of delusional jealousy, marked by suspecting a faithful partner of infidelity like cheating, adultery or having an affair. The patient may attempt monitoring</p>



	<p>his spouse or partner.</p> <p>Frégoli delusion → is when a person holds a delusional belief that different people are in fact a single person who changes appearance or is in disguise.</p> <p>Capgras syndrome → A type of delusional misidentification in which the patient believes that a person known to them has been replaced by a 'double' who is to all external appearances identical, but is not the 'real person'.</p> <p>Cotard syndrome → is a presentation of psychotic depressive illness characterised by a combination of severely depressed mood with nihilistic delusions. The patient may state that he is already dead and should be buried. He may state that his insides have stopped working and are rotting away, or that he has stopped existing altogether.</p> <p>Ekbom syndrome → Also known as restless legs syndrome. An unpleasant, often painful sensations in the legs, particularly on sleep onset. Significantly interferes with the ability to get to sleep.</p>
13.	<p>A 21 year old girl looking unkempt, came to the hospital asking for painkillers for her abdominal pain. She is agitated, and looks malnourished. She is also sweating, shivering and complains of joint pain. What is the SINGLE most likely substance misuse?</p> <p>A. Alcohol B. Heroin C. Cocaine D. LSD E. Ecstasy</p> <p>Agitation, nervousness, abdominal cramp, sweating, shivering, arthralgia are all features of heroin withdrawal.</p> <p>Opiates/opioids</p> <p>The opiates are a group of chemicals are widely abused for their euphoriant and anxiolytic properties. Heroin is the most frequently abused opiate.</p> <p>Heroin</p> <p>It is most commonly consumed by smoking ('chasing'), but is also taken orally, occasionally snorted, and parenterally by IV, IM, or subcutaneous routes.</p> <p>Dependent patients may describe limited euphoriant effects, with the drug being mainly taken to avoid unpleasant withdrawals.</p>



	<p>Acute medical problems associated with heroin use by any route include nausea and vomiting, constipation, respiratory depression, and loss of consciousness with aspiration (the cause of many fatalities).</p> <p>Opiate dependency develops after weeks of regular use and is associated with an unpleasant (but not generally medically dangerous) withdrawal syndrome.</p>
14.	<p>A 55 year old man has a firm belief that the headlines in the newspapers are written especially for him. He believes that the authors of the newspaper articles who he has never met are sending secret and significant messages that only he can understand. What is the SINGLE most likely type of delusion that this man is suffering from?</p> <p>A. Persecutory delusions B. Grandiose delusions C. Delusion of control D. Delusion of reference E. Nihilistic delusions</p> <p>Delusion of reference → is the false belief that insignificant remarks, events, or objects in one's environment have personal meaning or significance. Example, someone constantly gives him or her a special messages through the newspaper.</p> <p>Persecutory delusion → is a delusional belief that one's life is being interfered with in a harmful way. It refers to false beliefs or perceptions in which a person believes that they are being treated with malicious intent, hostility, or harassment despite significant evidence to suggest otherwise. This may occur in the context of being tormented, followed, or spied on.</p> <p>Grandiose delusions → or delusions of grandeur is the fantastical beliefs that one is famous, omnipotent, wealthy, or otherwise very powerful. They believe that they have exceptional abilities or talents and keep praising themselves.</p> <p>Delusion of control → is the false belief that another person, group of people, or external force controls one's general thoughts, feelings, impulses, or behavior.</p> <p>Nihilistic delusions → is the delusional belief that the patient has died or no longer exists or that the world has ended or is no longer real. Nothing matters any longer and continued effort is pointless. It is a feature of psychotic depressive illness. Patient may believe that he/she is dead and may ask people to bury them.</p>



15.	<p>A 33 year old man with a family history of panic disorder has palpitations, tremors, sweating and muscles tightness on 3 occasions in the last 6 weeks. His pulse rate is 85 bpm, BP is 120/80 mmHg. What is the SINGLE most appropriate long-term treatment for him?</p> <p>A. Diazepam B. Olanzapine C. Haloperidol D. Fluoxetine E. Alprazolam</p> <p>He is suffering from panic disorder. An SSRI or cognitive behavioural therapy would be appropriate. Fluoxetine is an SSRI.</p> <p>Management of panic disorder NICE recommend either cognitive behavioural therapy or drug treatment. SSRIs are first-line. If contraindicated or no response after 12 weeks then imipramine or clomipramine should be offered</p>
16.	<p>A 33 year old woman has been feeling down for the past one year. She feels fatigue and is eating more than usual. Several times a week she would wake up during the night and would not be able to go back to sleep. Occasionally, she hears voices of her late husband who died two years ago. What is the SINGLE most likely diagnosis?</p> <p>A. Obsessive compulsive disorder B. Psychotic depression C. Grieving D. Severe depression E. Hypomania</p> <p>This affected individual has lost her husband. Depression should be something to consider. The auditory hallucinations are signs that this woman is having some form of psychosis. The most probable diagnosis here is psychotic depression.</p> <p>Very commonly in PLAB they would give a scenario of a person having symptoms of an atypical or typical depression plus having some form of hallucinations. In majority of the cases, the answer to that scenario would be psychotic depression.</p>
17.	<p>A 64 year old man has recently suffered from an a myocardial infarction 5 months ago. He has been having trouble sleeping and seems depressed. His regular medications include aspirin, atorvastatin and ramipril. What is the SINGLE most appropriate medication to start him on?</p> <p>A. Lofepramine B. Dosulepin C. Citalopram D. Amitriptyline E. Phenelzine</p>



	<p>For majority of patients with moderate depression, selective serotonin reuptake inhibitors (SSRIs) are considered first-line</p> <p>If the question gives you options of SSRIs, sertraline would be the best answer to pick as sertraline has good safety profile with patients with myocardial infarction. The other antidepressants have not been studied enough in context of myocardial infarction however citalopram has gained popularity and is also considered safe for use in patients with depression with a history of myocardial infarction.</p> <p><i>Remember, both sertraline and citalopram are safe options for patients who have had a recent MI. If both were present as options, pick Sertraline as there is more evidence for its safe use for patients who have had recent MI.</i></p> <p>Citalopram and fluoxetine are the preferred SSRIs if there is no relevant past medical history.</p>
18.	<p>A 28 year old woman comes in with her limbs paralysed after witnessing a car accident. She cannot recall what just happened. What is the SINGLE most likely diagnosis?</p> <p>A. Somatization disorder B. Hypochondriasis C. Munchausen's syndrome D. Conversion disorder E. Malingering</p> <p>Conversion (dissociative) disorders typically involves loss or disturbance of normal motor or sensory function which initially appears to have a neurological or other physical cause but is later attributed to a psychological cause. The patient does not consciously feign the symptoms or seek material gain. Memory loss, seizures, loss of speech and paralysis can occur.</p> <p>Somatization disorder → The experience of bodily symptoms with no physical cause for them, with presumed psychological causation.. The patient refuses to accept reassurance or negative test results</p> <p>Hypochondriasis → is the persistent belief in the presence of an underlying serious DISEASE, e.g. cancer or HIV. The patient again refuses to accept reassurance or negative test results.</p> <p>Munchausen's syndrome → also known as factitious disorder. Patients intentionally falsify their symptoms and past history and fabricate signs of physical or mental disorder with the primary aim of obtaining medical attention and treatment. The diagnostic features are the intentional and conscious production of signs, falsification, or exaggeration of the history and the lack of gain beyond medical attention and treatment.</p> <p>Malingering → Deliberately falsifying the symptoms of illness for a secondary gain (e.g. for compensation, to avoid military service, or to obtain an opiate prescription).</p>



19.	<p>A 30 year old woman has been feeling low and having difficulty in concentrating since her mother passed away 2 months ago. She feels lethargic and has been crying more often lately. What is the SINGLE most likely diagnosis?</p> <p>A. Adjustment disorder B. Post traumatic stress disorder C. Panic disorder D. Generalized anxiety disorder E. Major depression</p> <p>Adjustment disorders</p> <p>An adjustment disorder occurs when an individual is unable to adjust to or cope with a particular stress or a major life event. They must occur within 1 (ICD-10) or 3 months (DSM-IV) of a particular psychosocial stressor, and should not persist for longer than 6 months after the stressor (or its consequences) is removed</p>
20.	<p>A 32 year old woman complains of abdominal pain, palpitations, unsteadiness, and numbness of the lower limbs. Every investigation that is performed by the doctors come back normal. What is the SINGLE most likely diagnosis?</p> <p>A. Somatization disorder B. Hypochondriasis C. Munchausen's syndrome D. Conversion disorder E. Malingering</p> <p>Somatization disorder is the experience of bodily symptoms with no physical cause for them, with presumed psychological causation. All investigations would be normal.</p> <p>Hypochondriasis → is the persistent belief in the presence of an underlying serious DISEASE, e.g. cancer or HIV. The patient again refuses to accept reassurance or negative test results.</p> <p>Munchausen's syndrome → also known as factitious disorder. Patients intentionally falsify their symptoms and past history and fabricate signs of physical or mental disorder with the primary aim of obtaining medical attention and treatment. The diagnostic features are the intentional and conscious production of signs, falsification, or exaggeration of the history and the lack of gain beyond medical attention and treatment.</p> <p>Conversion (dissociative) disorders → typically involves loss or disturbance of normal motor or sensory function which initially appears to have a neurological or other physical cause but is later attributed to a psychological cause. The patient does not consciously feign the symptoms or seek material gain. Patients may be indifferent to their apparent disorder.</p> <p>Malingering → Deliberately falsifying the symptoms of illness for a secondary gain (e.g. for compensation, to avoid military service, or to obtain an opiate prescription).</p>



21.	<p>A 24 year old woman is afraid to leave her house as whenever she goes out into the open, she tends to have shortness of breath, palpitations and sweating. She only goes out when her husband is with her. What is the SINGLE most likely diagnosis?</p> <p>A. Social phobia B. Claustrophobia C. Depression D. Panic disorder E. Agoraphobia</p> <p>The answer here is agoraphobia as she has a fear of going out into the open.</p> <p>Agoraphobia → Fear of open spaces</p> <p>Social phobia (Social Anxiety Disorder) → persistent fear and anxiety about one or more social or performance situations</p> <p>Claustrophobia → irrational fear of confined spaces</p> <p>Agoraphobia Means "fear of open spaces"</p> <p>Many people assume agoraphobia is simply a fear of open spaces, but it's actually a more complex condition. Someone with agoraphobia may be scared of:</p> <ul style="list-style-type: none">• travelling on public transport• visiting a shopping centre• leaving home <p>A clinical definition is "a fear of open spaces, especially those in which getaway may be difficult, which leads to avoidance of the situation". Being in these provoking situation usually leads to an anxiety attack. It is also associated with places or situations where escape may be difficult or embarrassing (e.g. of crowds, public places, travelling alone or away from home).</p> <p>If someone with agoraphobia finds themselves in a stressful situation, they'll usually experience the symptoms of a panic attack, such as:</p> <ul style="list-style-type: none">• palpitations• hyperventilating• sweating <p>Some patients can manage to continue their daily lives (with difficulty), whilst others are severely affected and may even become incapacitated.</p>
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22. A 64 year old man has a firm belief that the person on the billboard outside his window is sending a messages that are meant specifically for him. What is the SINGLE most likely type of delusion that this man is suffering from?

- A. Persecutory delusions
- B. Grandiose delusions
- C. Delusion of control
- D. Delusion of reference**
- E. Nihilistic delusions

Delusion of reference → is the false belief that insignificant remarks, events, or objects in one's environment have personal meaning or significance. Example, someone constantly gives him or her a special messages through the newspaper.

Persecutory delusion → is a delusional belief that one's life is being interfered with in a harmful way. It refers to false beliefs or perceptions in which a person believes that they are being treated with malicious intent, hostility, or harassment despite significant evidence to suggest otherwise. This may occur in the context of being tormented, followed, or spied on.

Grandiose delusions → or delusions of grandeur is the fantastical beliefs that one is famous, omnipotent, wealthy, or otherwise very powerful. They believe that they have exceptional abilities or talents and keep praising themselves.

Delusion of control → is the false belief that another person, group of people, or external force controls one's general thoughts, feelings, impulses, or behavior.

Nihilistic delusions → is the delusional belief that the patient has died or no longer exists or that the world has ended or is no longer real. Nothing matters any longer and continued effort is pointless. It is a feature of psychotic depressive illness. Patient may believe that he/she is dead and may ask people to bury them.

23. A 6 year old child is brought to the clinic by his mother. She says that his teacher complains that he is easily distracted and interrupts others when it is their turn to answer questions. His mother says that he is not able to do a particular task for a long time and cannot play quietly. He is careless and often breaks things. What is the SINGLE most likely diagnosis?

- A. Autism spectrum disorder
- B. Dyslexia
- C. Attention deficit hyperactivity disorder (ADHD)**
- D. Antisocial personality disorder
- E. Oppositional defiant

Attention deficit hyperactivity disorder (ADHD) is characterized by the three core symptoms of inattention, hyperactivity, and impulsiveness.



	<p>Clinical features</p> <p>Inattention: Careless with detail, fails to sustain attention, appears not to listen, fails to finish tasks, poor selforganization, loses things, forgetful, easily distracted, and avoids tasks requiring sustained attention.</p> <p>Hyperactivity: fidgets with hands or feet, leaves seat in class, runs/climbs about, cannot play quietly, 'always on the go'.</p> <p>Impulsiveness: Talks excessively, blurts out answers, cannot await turn, interrupts others, intrudes on others.</p>
24.	<p>A 24 year man finds it difficult to come out of his house without checking if he has locked the door several times. When exits his house, he has to check it at least 3 times by pushing the door handle to confirm it is locked. He now wants help as he has been doing this for a couple of years. What is the SINGLE most appropriate management?</p> <p>A. Exposure and response prevention (ERP) B. Selective serotonin reuptake inhibitors (SSRIs) C. Electroconvulsive therapy (ECT) D. Antipsychotics E. Desensitization</p> <p>The diagnosis here is obsessive-compulsive disorder (OCD). Exposure and response prevention (ERP) is included in cognitive behavioural therapy (CBT) in treatment for those who present with OCD. The method is predicated on the idea that a therapeutic effect is achieved as subjects confront their fears and discontinue their escape response. In this case, the patient would be exposed to his feared stimulus (locking the door just once and coming out of the house), and would refuse to respond with any safety behaviors (checking the door again).</p> <p>SSRIs are also a treatment choice for OCD. But as this is only a mild functional impairment, ERP would be a more appropriate answer. NICE CKS has very specific guidelines for obsessive-compulsive disorder (OCD)</p> <p>In the initial treatment of adults with OCD, low intensity psychological treatments (including Exposure and Response Prevention (ERP)) should be offered if the patient's degree of functional impairment is mild and/or the patient expresses a preference for a low intensity approach. Low intensity treatments include brief individual or group CBT (including ERP)</p> <p>Adults with OCD with mild functional impairment who are unable to engage in low intensity CBT (including ERP), or for whom low intensity treatment has proved to be inadequate, should be offered the choice of either a course of an SSRI or more intensive CBT (including ERP).</p> <p>Obsessive-compulsive disorder (OCD)</p> <p>A common, chronic condition, often associated with marked anxiety and depression, characterized by 'obsessions'.</p>



	<p>It is characterized by recurrent obsessions or compulsions that are recognized by the individual as unreasonable. Obsessions are anxiety-provoking, intrusive thoughts, commonly concerning contamination, doubt, guilt, aggression, and sex. Compulsions are peculiar behaviors that reduce anxiety, commonly hand-washing, organizing, checking, counting, and praying.</p> <p>Management</p> <p>CBT is recommended by NICE, but essentially takes a behavioural approach, including exposure and response prevention (ERP).</p> <p>SSRIs (licensed): escitalopram, fluoxetine, sertraline or paroxetine should be considered first-line (no clear superiority of any one agent). Other (unlicensed) agents include citalopram</p> <p>For PLAB, electroconvulsive therapy (ECT) would be the answer for treatment of OCD, if the patient is suicidal or severely incapacitated</p>
25.	<p>A 29 year old man has been found in the park, drunk and brought to the emergency department by ambulance. He recently lost his job and had a divorce 3 months ago. He has intense feelings of feeling worthless and being a failure. He also hears voices telling him he is worthless. What is the SINGLE most likely diagnosis?</p> <p>A. Schizoid personality disorder B. Borderline personality C. Schizophrenia D. Psychotic depression E. Hypomania</p> <p>This affected individual has lost his job and had a recent divorce. Depression should be something to consider. The auditory hallucinations are signs that this man is having some form of psychosis. The most probable diagnosis here is psychotic depression. Feeling worthless are in line with the delusions of guilt which are seen in psychotic depression.</p> <p><u>The other answers are unlikely to be correct:</u></p> <p>Schizoid personality disorder → is a personality disorder characterized by a lack of interest in social relationships, a tendency towards a solitary lifestyle,</p> <p>Borderline personality disorder → Usually characterized by mood swings, marked impulsivity, unstable relationships, and inappropriate anger. They are usually attention seekers and may have multiple self-inflicted scars.</p> <p>Schizophrenia → does not account for the history of the lost of job and divorce. Feelings of worthlessness are also more in line with depression rather than schizophrenia</p> <p>Hypomania → describes a mild degree of mania where there is elevated mood but no significant impairment of the patient's day-to-day functioning</p>



26. A 28 year old female who delivered 6 weeks ago feels sad and has no interest to feeding the baby. She has been eating poorly and having difficulty sleeping. She feels weak throughout the day and has stopped taking the baby out of the house. She also says that the baby has evil eyes. What is the SINGLE most likely diagnosis?

- A. Postpartum blues
- B. Postpartum depression
- C. Postpartum psychosis**
- D. Schizophrenia
- E. Psychotic depression

She has features of depression: feels sad, not eating well, difficulty sleeping, feeling weak. On top of that she has delusional ideas: no interest to feed baby, she thinks baby has evil eyes and not taking the baby out of the house. These points to postpartum psychosis.

A key feature to look out for in PLAB is the words “evil eyes”. If mother has recently delivered and thinks that her baby has evil eyes, pick the answer that has postpartum psychosis. You are most likely to be correct.

Postpartum psychosis

Usually starts with postpartum depression. Classically, they would have thoughts of harming their new born baby. She would have delusional ideas that the baby is deformed, evil or otherwise affected in some way and she has intent to kill or harm the baby

Onset usually within the first 2-3 weeks following birth

Management

Admission to hospital (specialist mother–baby unit if possible) is usually required

For major affective disorder there is good evidence for ECT.

Comparison of Postpartum Blues , Postnatal Depression, Postpartum Psychosis

	Postpartum Blues	Postnatal Depression	Postpartum Psychosis
Onset	Starts at two or three days after birth and lasts 1–2 days	Peaks at 3 to 4 weeks postpartum	Peaks at 2 weeks postpartum
Mother cares for baby	Yes	Yes	Thoughts of harming baby
Symptoms	Mostly crying	Symptoms of depression:	Psychotic symptoms



			Feels that she is not capable of looking after her child Feels as if she will not be a good mother Tearful, Anxiety Worries about baby's health	E.g. hears voices saying baby is evil Insomnia Disorientation Thoughts of suicide	
	Treatment	Reassurance and explanation	Antidepressants or CBT	In PLAB, answer would be ECT	
27.	<p>A 25 year old woman presents to the GP with low mood. She has an increased appetite and has gone up 2 dress sizes. She also complains that she feels very tired and often only gets out of bed in the afternoon despite sleeping early. What is the SINGLE most likely diagnosis?</p> <p>A. Pseudo depression B. Moderate depression C. Severe depression D. Dysthymia E. Atypical depression</p> <p>Atypical depression is a subtype of major depression or dysthymic disorder that involves several specific symptoms, including increased appetite or weight gain, sleepiness or excessive sleep, marked fatigue or weakness.</p> <p>Atypical depressive episode</p> <p>Regarded as a subtype of depressive disorder, rather than a separate entity.</p> <p>Clinical features</p> <ul style="list-style-type: none">• Mood is depressed, but remains reactive (able to enjoy certain experiences but not to 'normal' levels)• Hypersomnia (sleeping more than 10 hours/day, at least 3 days/weeks, for at least 3 months)• Hyperphagia (excessive eating with weight gain of over 3kg in 3 months)• 'Lead paralysis' (feeling of heaviness in the limbs) <p>Epidemiology Onset usually in late teens and early twenties</p>				



28. A 23 year old woman has had several sudden onset episodes of palpitations, sweating, nausea and overwhelming fear. On one occasion she was woken from sleep and had the fear that she was going insane. She has no previous psychiatric medical history and is not on any medication. What is the SINGLE most likely diagnosis?

- A. Pheochromocytoma
- B. Panic disorder**
- C. Generalized anxiety disorder
- D. Hypnophobia
- E. Acute stress disorder

It is quite difficult to differentiate generalized anxiety disorder with panic disorder. People with generalized anxiety disorder feel anxious most days and often struggle to remember the last time they felt relaxed. As soon as one anxious thought is resolved, another may appear about a different issue. Panic disorder, however is where you have recurring and regular panic attacks, often for no apparent reason similar to this stem where she had several sudden onset episodes of panic.

Panic disorder

Panic disorder is classified as having 2 recurrent panic attacks, which are not secondary to substance misuse, medical conditions, or another psychiatric disorder. Frequency of occurrence may vary from many attacks a day to only a few a year. Usually patients have a persistent worry about having another attack or consequences of the attack.

Symptoms/signs

- Physical symptoms/signs related to autonomic arousal (e.g. tremor, tachycardia, tachypnoea, hypertension, sweating)
- Concerns of death from cardiac or respiratory problems may be a major focus, leading to patients presenting (often repeatedly) to emergency medical services.

29. A 35 year old chronic alcoholic has been trying to stop his alcohol drinking habit. He has been going for support meetings. He wants to know if there is a medication that can help reduce his alcohol cravings. What is the SINGLE most appropriate medication?

- A. Disulfiram
- B. Acamprosate**
- C. Vitamin B12
- D. Pabrinex
- E. Chlordiazepoxide

Alcohol, a drinking problem

The general idea for is:

- Disulfiram
 - Acts as a deterrent → Some five to 10 minutes after alcohol intake, the patient may experience the effects of a severe hangover for a period of 30 minutes up to several hours.



	<ul style="list-style-type: none">• Acamprosate<ul style="list-style-type: none">• Reduces cravings
30.	<p>A 28 year old woman has episodes of peri-oral tingling and carpopedal spasms every time she has to give a public talk. These symptoms also happens to her before interviews, exams and after arguments. She describes these episodes as short lasting only a couple of minutes but with intense fear. What is the SINGLE most appropriate management?</p> <p>A. Diazepam B. Rebreath into a paper bag C. Alprazolam D. Buspirone E. Propranolol</p> <p>In panic attacks, perioral paresthesia, tingling and numbness in the hands can occur due to hyperventilation and CO₂ washout leading to low ionic calcium. Rebreath into a paper bag will help to increase CO₂ levels and resolve symptoms.</p> <p>Panic attacks</p> <p>Period of intense fear characterized by a constellation of symptoms that develop rapidly, reach a peak of intensity in about 10min, and generally do not last longer than 20–30min (rarely over 1 hour). Attacks may be either spontaneous ('out of the blue') or situational (usually where attacks have occurred previously).</p> <p>Symptoms/signs</p> <ul style="list-style-type: none">• Tremor• Tachycardia• Tachypnoea,• Sweating• Concerns of death from cardiac or respiratory problems <p>They may complain of dizziness, circumoral paraesthesia, carpopedal spasm, and occasionally sharp or stabbing chest pain. Initial examination would reveal tachypnoea with equal air entry over both lung fields, and no wheeze or evidence of airway obstruction. It is important to consider secondary causes (such as PE or DKA). Therefore, perform the following investigations:</p> <ul style="list-style-type: none">• SpO₂• ECG• ABG if SpO₂ ↓ , or if symptoms do not completely settle in a few minutes• BMG <p>If symptoms do not completely settle in a few minutes, obtain:</p> <ul style="list-style-type: none">• CXR• U&E, blood glucose, FBC



	<p>Treatment</p> <p>Do not sedate a patient who is hyperventilating. Once serious diagnoses have been excluded, use this information to help reassure the patient with primary hyperventilation. Often this is all that is required, but it may be helpful to try simple breathing exercises (e.g. breathe in through nose)</p>
31.	<p>A 30 year old man who served in the army 6 months ago presents with lack of interest in enjoyable activities and feeling low. He often wakes up in the middle of the night because of nightmares of gun fire. He feels irritable and has difficulty concentrating. He tries not to watch the news as it reminds him of war. What is the SINGLE most appropriate initial therapy?</p> <p>A. Citalopram B. Lofepramine C. Cognitive behavioural therapy (CBT) D. Chlordiazepoxide E. Desensitization</p> <p>This man is suffering from post-traumatic stress disorder</p> <p>Post-traumatic stress disorder (PTSD) develops following a traumatic event. In this case, it was war that stimulated PTSD.</p> <p>Post-traumatic stress disorder (PTSD)</p> <ul style="list-style-type: none">• Develops following a traumatic event <p>Features</p> <ul style="list-style-type: none">• Re-experiencing:<ul style="list-style-type: none">◦ Flashbacks, nightmares• Avoidance:<ul style="list-style-type: none">◦ Avoiding people, situations or circumstances resembling or associated with the event• Hyperarousal<ul style="list-style-type: none">◦ Hypervigilance for threat, exaggerated startle response, sleep problems, irritability and difficulty concentrating• Emotional numbing<ul style="list-style-type: none">◦ Lack of ability to experience feelings <p>Management</p> <ul style="list-style-type: none">• Trauma-focused cognitive behavioural therapy (TF-CBT) and eye movement desensitization and reprocessing (EMDR): are first-line treatments <i>It is very common to have questions with a patient with clear symptoms of PTSD and the question would ask which is first line. If CBT is present, that is usually the answer.</i>• SSRI's would be second line. e.g. paroxetine, sertraline are licensed for PTSD. Other unlicensed possibilities include: fluoxetine, citalopram, escitalopram, and fluvoxamine.



	<p><i>If you find all these names of SSRI's difficult to remember. Just remember these 3 → Paroxetine, sertraline, and fluoxetine.</i></p>
32.	<p>A 24 year old man feels down and lethargic. In the last couple of months, he has stopped enjoying his hobbies which include playing the violin. He was admitted to the psychiatry ward last year following an episode of overspending, reckless behaviour and promiscuity. What is the SINGLE most likely diagnosis?</p> <p>A. Psychosis B. Cyclothymia C. Bipolar affective disorder D. Seasonal affective disorder E. Depression</p> <p>Bipolar affective disorder (commonly known as manic depression) Classically, periods of prolonged and profound depression alternate with periods of excessively elevated and irritable mood, known as mania.</p> <p>Most people who battle with the effects of the disorder would rather live a normal life, free from the unpredictability of mood swings, which most of us take for granted.</p> <p>The symptoms of mania characteristically include:</p> <ul style="list-style-type: none">• Decreased need for sleep• Pressured speech• Increased libido• Reckless behaviour without regard for consequences• Grandiosity• More talkative than usual <p>These symptoms of mania would alternate with depression</p> <p>Treatment Mood stabilizers (Lithium)- Despite problems with tolerability, lithium still remains the gold standard in the treatment of bipolar affective disorder.</p>
33.	<p>A 65 year old woman thinks she has died 3 months ago and is very distressed that nobody has buried her up till now. She hears people's voices which tell her that is evil and needs to be punished. She barely has any eye contact when speaking to the health care professionals. What is the SINGLE most likely explanation for her symptoms?</p> <p>A. Schizophrenia B. Mania C. Psychotic depression D. Hysteria E. Toxic confusional state</p>



	<p>Some people who have severe clinical depression will also experience hallucinations and delusional thinking, the symptoms of psychosis.</p> <p>Nihilistic delusions is the delusional belief that the patient has died or no longer exists or that the world has ended or is no longer real. Nothing matters any longer and continued effort is pointless. It is a feature of psychotic depressive illness. Patient may believe that he/she is dead and may ask people to bury them.</p>
34.	<p>A 29 year old teacher was run down by a drunk driver a year ago. Since then, she has been afraid to cross the road. She suffers from nightmares about that incident and gets a startled response every time she hears loud sounds. What is the SINGLE most appropriate initial management?</p> <p>A. Cognitive behavioural therapy (CBT) B. Diazepam C. Citalopram D. Dosulepin E. Sertraline</p> <p>Post-traumatic stress disorder (PTSD)</p> <ul style="list-style-type: none">• Develops following a traumatic event <p>Features</p> <ul style="list-style-type: none">• Re-experiencing:<ul style="list-style-type: none">◦ Flashbacks, nightmares• Avoidance:<ul style="list-style-type: none">◦ Avoiding people, situations or circumstances resembling or associated with the event• Hyperarousal<ul style="list-style-type: none">◦ Hypervigilance for threat, exaggerated startle response, sleep problems, irritability and difficulty concentrating• Emotional numbing<ul style="list-style-type: none">◦ Lack of ability to experience feelings <p>Management</p> <ul style="list-style-type: none">• Trauma-focused cognitive behavioural therapy (TF-CBT) and eye movement desensitization and reprocessing (EMDR): are first-line treatments <i>It is very common to have questions with a patient with clear symptoms of PTSD and the question would ask which is first line. If CBT is present, that is usually the answer.</i>• SSRI's would be second line. e.g. paroxetine, sertraline are licensed for PTSD. Other unlicensed possibilities include: fluoxetine, citalopram, escitalopram, and fluvoxamine. <i>If you find all these names of SSRI's difficult to remember. Just remember these 3 → Paroxetine, sertraline, and fluoxetine.</i>



35.	<p>A 35 year old is agitated and euphoric. He claims to be helping the prime minister with economic policies and describes himself to be a very powerful man. He believes that he has made important discoveries regarding international policies that have great impact towards the United Kingdom. On further investigation, these statements are untrue. What is the SINGLE most likely diagnosis?</p> <p>A. Bipolar disorder B. Schizophrenia C. Hypomania D. Erotomania E. Delusion of grandeur</p> <p>His delusions describe a type of delusion called grandiose delusions which are usually found in patients with mania.</p> <p>Grandiose delusions → or delusions of grandeur is the fantastical beliefs that one is famous, omnipotent, wealthy, or otherwise very powerful. They believe that they have exceptional abilities or talents and keep praising themselves.</p>
36.	<p>A 28 year old business man returned from a trip from Kenya 2 years ago. He attends a sexual clinic worried that he has contracted HIV. Antibody screening test for HIV has come back negative. There were 2 similar HIV test performed 6 months and 9 months ago which have both come back as negative. This is his 5th visit to the clinic claiming that he is HIV positive. What is the SINGLE most likely diagnosis?</p> <p>A. Somatization disorder B. Hypochondriasis C. Munchausen's syndrome D. Conversion disorder E. Malingering</p> <p>Hypochondriasis → is the persistent belief in the presence of an underlying serious DISEASE, e.g. cancer or HIV. The patient again refuses to accept reassurance or negative test results.</p> <p>Somatization disorder → The experience of bodily symptoms with no physical cause for them, with presumed psychological causation.. The patient refuses to accept reassurance or negative test results</p> <p>Munchausen's syndrome → also known as factitious disorder. Patients intentionally falsify their symptoms and past history and fabricate signs of physical or mental disorder with the primary aim of obtaining medical attention and treatment. The diagnostic features are the intentional and conscious production of signs, falsification, or exaggeration of the history and the lack of gain beyond medical attention and treatment.</p> <p>Conversion (dissociative) disorders → typically involves loss or disturbance of normal motor or sensory function which initially appears to have a neurological or other physical cause but</p>



	<p>is later attributed to a psychological cause. The patient does not consciously feign the symptoms or seek material gain. Patients may be indifferent to their apparent disorder.</p> <p>Malingering → Deliberately falsifying the symptoms of illness for a secondary gain (e.g. for compensation, to avoid military service, or to obtain an opiate prescription).</p>
37.	<p>A 38 year old man keeps having intrusive thoughts about having dirt under the bed. He cannot keep himself from thinking about these thoughts. If he tries to resist, he starts having palpitations. What is the SINGLE most likely diagnosis?</p> <p>A. Adjustment disorders B. Obsessive-compulsive disorder (OCD) C. Schizophrenia D. Panic disorder E. Acute stress reaction</p> <p>Obsessive-compulsive disorder (OCD)</p> <p>A common, chronic condition, often associated with marked anxiety and depression, characterized by 'obsessions'.</p> <p>It is characterized by recurrent obsessions or compulsions that are recognized by the individual as unreasonable. Obsessions are anxiety-provoking, intrusive thoughts, commonly concerning contamination, doubt, guilt, aggression, and sex. Compulsions are peculiar behaviors that reduce anxiety, commonly hand-washing, organizing, checking, counting, and praying.</p> <p>Management</p> <p>CBT is recommended by NICE, but essentially takes a behavioural approach, including exposure and response prevention (ERP).</p> <p>SSRIs (licensed): escitalopram, fluoxetine, sertraline or paroxetine should be considered first-line (no clear superiority of any one agent). Other (unlicensed) agents include citalopram</p> <p>For PLAB, electroconvulsive therapy (ECT) would be the answer for treatment of OCD, if the patient is suicidal or severely incapacitated</p>
38.	<p>A 22 year old woman thinks she is overweight. She has a body mass index of 21.8 kg/m². She has often has constipation and abdominal pain. She eats uncontrollably and feels guilty resulting in self-inducing vomiting. Sometimes to compensate for her big meal, she would exercise intensively. What is the SINGLE most likely diagnosis?</p> <p>A. Anorexia nervosa B. Pituitary tumour C. Hypothyroidism D. Bulimia nervosa E. Prader willi syndrome</p>



Bulimia nervosa

Bulimia nervosa is an eating disorder characterised by repeated episodes of uncontrolled overeating (binges) followed by compensatory weight loss behaviours.

Features:

- Excessive preoccupation with body weight and shape
- Compensatory weight control mechanisms which can be:
 - Self-induced vomiting
 - Fasting
 - Intensive exercise
 - Abuse of medication such as laxatives, diuretics, thyroxine or amphetamines

Note that a person with bulimia nervosa does not necessarily need to be thin. They sometimes maintained a BMI above 17.5 kg/m².

Examination:

- Salivary glands (especially the parotid) may be swollen.
- Russell's sign may be present (calluses form on the back of the hand, caused by repeated abrasion against teeth during inducement of vomiting).
- There may be erosion of dental enamel due to repeated vomiting.

- 39.** A 20 year old man complains his movements are being watched. He feels as though his actions are being controlled by the radio. At times he hears voices describing his actions. What is the SINGLE most likely diagnosis?

- A. Mania
- B. Schizoid personality disorder
- C. Paranoid personality disorder
- D. Schizophrenia**
- E. Korsakoff psychosis

He describes his movements being controlled by the radio. This is known as passive phenomena. He also describes voices describing what he is doing. This is called third-person auditory hallucinations. Sometimes these voices can be heard like a running commentary. Example, the patient hears one or more voices providing a narrative of their current actions, 'he's getting up...now he's going towards the window'.

All these features are features of schizophrenia.



	<p>Schizophrenia</p> <p>Features</p> <p>Auditory hallucinations:</p> <ul style="list-style-type: none">• third-person auditory hallucinations → voices are heard referring to the patient as 'he' or 'she', rather than 'you'• thought echo → an auditory hallucination in which the content is the individual's current thoughts• voices commenting on the patient's behaviour <p>Thought disorder:</p> <ul style="list-style-type: none">• thought insertion → The delusional belief that thoughts are being placed in the patient's head from outside• thought withdrawal → The delusional belief that thoughts have been 'taken out' of his/her mind• thought broadcasting → The delusional belief that one's thoughts are accessible directly to others• thought blocking → a sudden break in the chain of thought. <p>Passivity phenomena:</p> <ul style="list-style-type: none">• bodily sensations being controlled by external influence <p>Delusional perceptions</p> <ul style="list-style-type: none">• a two stage process where first a normal object is perceived then secondly there is a sudden intense delusional insight into the object's meaning for the patient e.g. 'The traffic light is green therefore I am the King'.
40.	<p>A 48 year old man attends his GP. He was started on fluoxetine 8 weeks ago for depression and is now requesting to stop his medication as he feels well and does not think he is depressed any longer. What is the SINGLE most appropriate advice to give to him in regards to his treatment?</p> <p>A. Stop fluoxetine right away B. Continued fluoxetine for at least another 6 months C. Fluoxetine dose should be gradually reduced over a 4 week period D. Fluoxetine dose should be gradually reduced over a 1 week period E. Change to a different SSRI</p> <p>If a patient makes a good response to antidepressant therapy they should continue on treatment for at least 6 months after remission as this reduces the risk of relapse.</p> <p>When stopping a SSRI the dose should be gradually reduced over a 4 week period (this is not necessary with fluoxetine).</p>



41. A 23 year old man comes to the emergency department with a history of drug misuse. He recognizes that he has a problem and is willing to see a psychiatrist. What is the SINGLE most accurate term that describes this situation?

- A. Judgement
- B. Thought insertion
- C. Thought block
- D. Mood
- E. Insight**

Insight

In psychology and psychiatry, insight can mean the ability to recognize one's own mental illness. This form of insight has multiple dimensions, such as recognizing the need for treatment, and recognizing consequences of one's behavior as stemming from an illness.

For example, people with obsessive compulsive disorder and various phobias tend to have relatively good insight that they have a problem and that their thoughts and/or actions are unreasonable, yet are compelled to carry out the thoughts and actions regardless.

In general, a patient with insight is a patient who knows that their symptoms represent abnormality and seeks their diagnosis and appropriate treatment.

42. A 30 year old woman complains of feeling restless, muscle tension and sleep disturbance on majority of the days over the last 9 months. She worries excessively about a number of everyday events and activities and is unable to control these feelings which are impairing her ability to hold down her job. What is the SINGLE most likely diagnosis?

- A. Panic disorder
- B. Generalized anxiety disorder (GAD)**
- C. Pheochromocytoma
- D. Acute stress reaction
- E. Social phobia

There is a fine line between Generalised Anxiety Disorder (GAD) and Panic attacks. They both can present similarly. The major difference is panic attacks are usually short lived (lasting no longer than 20–30min (rarely over 1 hour). 'Excessive worry' and feelings of apprehension about everyday events like in this case points towards the diagnosis of GAD.

Acute stress reaction is a transient disorder (lasting hours or days) that may occur in an individual as an immediate (within 1 hour) response to exceptional stress (e.g. natural catastrophe, major accident, serious assault, warfare, rape, fire). Symptoms tend to be mixed with an initial state of daze, followed by depression, and anxiety. As in this case, the symptoms were going on for 9 months, it is not acute stress reaction.

Generalized anxiety disorder (GAD)



	<p>'Excessive worry' and feelings of apprehension about everyday events, with symptoms of muscle and psychic tension, causing significant distress and functional impairment.</p> <p>Symptoms of GAD (present most days for at least 6 months)</p> <ul style="list-style-type: none">• Restlessness• concentration difficulties or 'mind going blank'• irritability• muscle tension• sleep disturbance• palpitations/tachycardia• sweating• Trembling or shaking• breathing difficulties; choking sensation; chest pain or discomfort;• fear of losing control, 'going crazy', passing out, dying. <p>Management</p> <p>Cognitive behavioural therapy or applied relaxation or drug treatment. NICE suggest sertraline should be considered the first-line SSRI. Alternative SSRI options are escitalopram or paroxetine.</p>
43.	<p>A 64 year old man believes a female newscaster on the television is communicating directly to him when she turns a page and when she looks at the camera. What is the SINGLE most likely type of delusion that this man is suffering from?</p> <p>A. Persecutory delusions B. Grandiose delusions C. Delusion of control D. Delusion of reference E. Nihilistic delusions</p> <p>Delusion of reference → is the false belief that insignificant remarks, events, or objects in one's environment have personal meaning or significance. Example, someone constantly gives him or her a special messages through the newspaper.</p> <p>Persecutory delusion → is a delusional belief that one's life is being interfered with in a harmful way. It refers to false beliefs or perceptions in which a person believes that they are being treated with malicious intent, hostility, or harassment despite significant evidence to suggest otherwise. This may occur in the context of being tormented, followed, or spied on.</p> <p>Grandiose delusions → or delusions of grandeur is the fantastical beliefs that one is famous, omnipotent, wealthy, or otherwise very powerful. They believe that they have exceptional abilities or talents and keep praising themselves.</p> <p>Delusion of control → is the false belief that another person, group of people, or external force controls one's general thoughts, feelings, impulses, or behavior.</p>



	<p>Nihilistic delusions → is the delusional belief that the patient has died or no longer exists or that the world has ended or is no longer real. Nothing matters any longer and continued effort is pointless. It is a feature of psychotic depressive illness. Patient may believe that he/she is dead and may ask people to bury them.</p>
44.	<p>A 26 year old woman is afraid to visit the shopping centre. Crowds and public places causes her to panic. She feels more relaxed when she goes out to public places with her husband than when alone. What is the SINGLE most likely diagnosis?</p> <p>A. Social phobia B. Claustrophobia C. Arachnophobia D. Acrophobia E. Agoraphobia</p> <p>The answer here is agoraphobia as she has a fear of going out into the open.</p> <p>Agoraphobia → Fear of open spaces</p> <p>Social phobia (Social Anxiety Disorder) → persistent fear and anxiety about one or more social or performance situations</p> <p>Claustrophobia → irrational fear of confined spaces</p> <p>Arachnophobia → fear of spiders</p> <p>Acrophobia → fear of heights</p> <p>Agoraphobia Means "fear of open spaces"</p> <p>Many people assume agoraphobia is simply a fear of open spaces, but it's actually a more complex condition. Someone with agoraphobia may be scared of:</p> <ul style="list-style-type: none">• travelling on public transport• visiting a shopping centre• leaving home <p>A clinical definition is "a fear of open spaces, especially those in which getaway may be difficult, which leads to avoidance of the situation". Being in these provoking situation usually leads to an anxiety attack. It is also associated with places or situations where escape may be difficult or embarrassing (e.g. of crowds, public places, travelling alone or away from home).</p> <p>If someone with agoraphobia finds themselves in a stressful situation, they'll usually experience the symptoms of a panic attack, such as:</p> <ul style="list-style-type: none">• palpitations• hyperventilating



	<ul style="list-style-type: none">• sweating <p>Some patients can manage to continue their daily lives (with difficulty), whilst others are severely affected and may even become incapacitated.</p>
45.	<p>A 32 year old man thinks nurses are plotting to harm him and are stealing his ideas straight out from his mind. Sometimes he feels the nurses are able to control his body. What is the SINGLE most likely diagnosis?</p> <p>A. Schizoid personality disorder B. Borderline personality C. Schizophrenia D. Psychotic depression E. Paranoid personality disorder</p> <p>The patient is suffering from schizophrenia. This can be shown by the fact that he thinks that ideas are being stolen from his mind (thought withdrawal), and that the nurses are plotting to harm him (persecutory delusion).</p> <p>The feeling of nurses controlling his body are consistent with schizophrenia. It is called passive phenomena.</p> <p>Schizophrenia Features</p> <p>Auditory hallucinations:</p> <ul style="list-style-type: none">• third-person auditory hallucinations → voices are heard referring to the patient as 'he' or 'she', rather than 'you'• thought echo → an auditory hallucination in which the content is the individual's current thoughts• voices commenting on the patient's behaviour <p>Thought disorder:</p> <ul style="list-style-type: none">• thought insertion → The delusional belief that thoughts are being placed in the patient's head from outside• thought withdrawal → The delusional belief that thoughts have been 'taken out' of his/her mind• thought broadcasting → The delusional belief that one's thoughts are accessible directly to others• thought blocking → a sudden break in the chain of thought. <p>Passivity phenomena:</p> <ul style="list-style-type: none">• bodily sensations being controlled by external influence <p>Delusional perceptions</p>



- a two stage process where first a normal object is perceived then secondly there is a sudden intense delusional insight into the object's meaning for the patient e.g. 'The traffic light is green therefore I am the King'.

46. A 34 year old woman 3 weeks after childbirth has thoughts of harming her little baby as she complains that he has evil eyes. She has been feeling low and has been suffering from lack of sleep. Prior to this she was well and has no psychiatric issues. What is the SINGLE most appropriate management for this patient?

A. Cognitive behavioural therapy (CBT)

B. Electroconvulsive Therapy (ECT)

C. IV haloperidol

D. Paroxetine

E. Amitriptyline

Evil eyes and thoughts of harming a baby are signs of postpartum psychosis and needs ECT

Postpartum psychosis

Usually starts with postpartum depression. Classically, they would have thoughts of harming their new born baby. She would have delusional ideas that the baby is deformed, evil or otherwise affected in some way and she has intent to kill or harm the baby

Onset usually within the first 2-3 weeks following birth

Management

Admission to hospital (specialist mother–baby unit if possible) is usually required

For major affective disorder there is good evidence for ECT.

Comparison of Postpartum Blues , Postnatal Depression, Postpartum Psychosis

	Postpartum Blues	Postnatal Depression	Postpartum Psychosis
Onset	Starts at two or three days after birth and lasts 1–2 days	Peaks at 3 to 4 weeks postpartum	Peaks at 2 weeks postpartum
Mother cares for baby	Yes	Yes	Thoughts of harming baby
Symptoms	Mostly crying	Symptoms of depression: Feels that she is not capable of	Psychotic symptoms E.g. hears voices saying baby is evil



			looking after her child Feels as if she will not be a good mother Tearful, Anxiety Worries about baby's health	Insomnia Disorientation Thoughts of suicide	
	Treatment	Reassurance and explanation	Antidepressants or CBT	In PLAB, answer would be ECT	
47.	<p>A 19 year old college student has a firm and unshakable belief that he is being followed by terrorists who are plotting against him. He says they follow him wherever he goes. What is the SINGLE most appropriate term for his condition?</p> <p>A. Persecutory delusions B. Grandiose delusions C. Delusion of control D. Delusion of reference E. Nihilistic delusions</p> <p>Persecutory delusion → is a delusional belief that one's life is being interfered with in a harmful way. It refers to false beliefs or perceptions in which a person believes that they are being treated with malicious intent, hostility, or harassment despite significant evidence to suggest otherwise. This may occur in the context of being tormented, followed, or spied on.</p> <p>Grandiose delusions → or delusions of grandeur is the fantastical beliefs that one is famous, omnipotent, wealthy, or otherwise very powerful. They believe that they have exceptional abilities or talents and keep praising themselves.</p> <p>Delusion of control → is the false belief that another person, group of people, or external force controls one's general thoughts, feelings, impulses, or behavior.</p> <p>Delusion of reference → is the false belief that insignificant remarks, events, or objects in one's environment have personal meaning or significance. Example, someone constantly gives him or her a special messages through the newspaper.</p> <p>Nihilistic delusions → is the delusional belief that the patient has died or no longer exists or that the world has ended or is no longer real. Nothing matters any longer and continued effort is pointless. It is a feature of psychotic depressive illness. Patient may believe that he/she is dead and may ask people to bury them.</p>				



48. A 64 year old man has just suffered from a myocardial infarction. Before discharge, he seems to be in a sad mood and avoids eye contact. The nurses report that he has skipped his last two meals. What is the SINGLE best treatment for this man's condition?

- A. Sertraline**
- B. Risperidone
- C. Lithium
- D. Amitriptyline
- E. Diazepam

For majority of patients with moderate depression, selective serotonin reuptake inhibitors (SSRIs) are considered first-line

If the question gives you options of SSRIs, sertraline would be the best answer to pick as sertraline has good safety profile with patients with myocardial infarction. The other antidepressants have not been studied enough in context of myocardial infarction however citalopram has gained popularity and is also considered safe for use in patients with depression with a history of myocardial infarction

Guidelines to choosing the right antidepressant:

Selective serotonin reuptake inhibitors (SSRIs) are used as first-line antidepressants in routine care because they are as effective as tricyclic antidepressants and less likely to be discontinued because of side-effects; also because they are less toxic in overdose.

Which SSRI to prescribe?

- Guidance suggests that we choose a generic SSRI (eg, citalopram, fluoxetine, paroxetine, or sertraline) when treating an individual with antidepressants for the first time
- Fluoxetine is the antidepressant of choice for children and young people. It is the only antidepressant licensed for this use.

In summary:

- SSRIs are first line. Remember these 4 drugs for PLAB 1:
 - Citalopram
 - Fluoxetine
 - Paroxetine
 - Sertraline
- Fluoxetine for young people



- 49.** A 33 year old woman has been feeling low and having difficulty in concentrating since her husband passed away 6 weeks ago. She has been crying almost everyday, and feeling hopeless. She has been withdrawing from other people and does not want to go out for dinner with her mother. What is the SINGLE most likely diagnosis?

A. Adjustment disorder

- B. Post traumatic stress disorder
C. Panic disorder
D. Generalized anxiety disorder
E. Social phobia

Adjustment disorders

An adjustment disorder occurs when an individual is unable to adjust to or cope with a particular stress or a major life event. They must occur within 1 (ICD-10) or 3 months (DSM-IV) of a particular psychosocial stressor, and should not persist for longer than 6 months after the stressor (or its consequences) is removed

- 50.** A 43 year old woman presents with low mood, and loss of libido. She feels tired all day and she attributes this to the fact that she wakes up 3 hours sooner than usual. She feels like she has been gaining weight. She also finds it difficult to concentrate for long periods of time. What is the SINGLE most likely diagnosis?

- A. Seasonal Affective Disorder
B. Bipolar disorder
C. Attention deficit hyperactivity disorder (ADHD)
D. General anxiety disorder
E. Depression

Symptoms of depression

- Present for at least 2 weeks and represent a change from normal.
- Depressed mood: present most of the day, nearly every day, with little variation
- Anhedonia: markedly diminished interest or pleasure in all, or almost all, activities most of the day
- Weight change: loss of weight when not dieting or weight gain associated with decreased or increased appetite
- Disturbed sleep: insomnia (with early morning waking 2–3 hr sooner than usual) or hypersomnia (especially in atypical depression)
- Fatigue or loss of energy.
- Reduced libido.
- Feelings of worthlessness or excessive or inappropriate guilt
- Diminished ability to think or concentrate or indecisiveness.
- Recurrent thoughts of death or suicide



51. A 33 year old woman has persistent fear when she has to speak publicly. She sweats and has palpitations and finds it very difficult to breathe. She is afraid of what people might think of her. She tries her best to avoid these situations. What is the SINGLE most likely diagnosis?

- A. Agoraphobia
- B. Acute stress disorder
- C. Social anxiety**
- D. Obsessive compulsive disorder
- E. Generalized anxiety disorder

Social Anxiety Disorder (Social Phobia)

Social anxiety disorder is the persistent fear and anxiety about one or more social or performance situations. It is characterized by marked fear of one or more social or performance-related situations where the person is exposed to scrutiny and in which embarrassment may occur. Exposure to social situations usually causes an anxiety reaction (may be a panic attack) that is distressing. Thus situations are either avoided or endured with discomfort.

Features

Social anxiety is a fear of being around people and having to interact with them. Sufferers fear being watched and criticised. Normal activities such as working, shopping, or speaking on the telephone are marked by persistent feelings of anxiety and self-consciousness.

Physical symptoms include trembling, blushing, sweating and palpitations.

There are two forms of the condition:

1. Generalised social anxiety which affects most, if not all areas of life. This is the more common type and affects around 70% of sufferers.
2. Performance social anxiety, where these feelings only occur in a few specific situations such as public speaking, eating in public or dealing with figures of authority.

52. A 29 year old women is overly paranoid that her partner is being unfaithful to her. She checks his phones, email accounts and bank statements several times a day for evidence of infidelity. She dislikes him going out as she fears that he would look at other women while he is out on his own. She does not allow any social media for fear that he may meet another women. What is the SINGLE most likely diagnosis?

- A. Frégoli delusion
- B. Cotard syndrome
- C. Capgras syndrome
- D. Ekbom syndrome
- E. Othello syndrome**

Othello syndrome → is a type of delusional jealousy, marked by suspecting a faithful partner of infidelity like cheating, adultery or having an affair. The patient may attempt monitoring his spouse or partner.



	<p>Frégoli delusion → is when a person holds a delusional belief that different people are in fact a single person who changes appearance or is in disguise.</p> <p>Capgras syndrome → A type of delusional misidentification in which the patient believes that a person known to them has been replaced by a 'double' who is to all external appearances identical, but is not the 'real person'.</p> <p>Cotard syndrome → is a presentation of psychotic depressive illness characterised by a combination of severely depressed mood with nihilistic delusions. The patient may state that he is already dead and should be buried. He may state that his insides have stopped working and are rotting away, or that he has stopped existing altogether.</p> <p>Ekbom syndrome → Also known as restless legs syndrome. An unpleasant, often painful sensations in the legs, particularly on sleep onset. Significantly interferes with the ability to get to sleep.</p>
53.	<p>A 62 year old man who was admitted for surgery 3 days ago suddenly becomes confused. His attention span is reduced. He is restless and physically aggressive and picks at his bed sheets. What SINGLE aspect of the patient's history recovered in his notes is most likely to aid in making the diagnosis?</p> <p>A. Chronic alcohol consumption B. Previous head trauma C. Psychiatric history of generalized anxiety disorder D. Psychiatric history of obsessive compulsive disorder E. Mild cognitive impairment</p> <p>Abstinence from alcohol in the hospital can cause delirium tremens which is noted here by his sudden confusion, restlessness and physical aggressiveness.</p> <p>Delirium tremens</p> <ul style="list-style-type: none">• Delirium tremens usually begins 24-72 hours after alcohol consumption has been reduced or stopped.• Seen in chronic alcoholics• The symptoms/signs differ from usual withdrawal symptoms in that there are signs of altered mental status. These can include hallucinations (auditory, visual, or olfactory), confusion, delusions, severe agitation. Seizures can also occur.



54.	<p>A 31 year old woman 15 days following childbirth is brought to the hospital by her husband. He complains that his wife has lost the ability to care for herself and is not eating well. She does not sleep well and has intrusive and unpleasant thoughts of harming the baby. What is the SINGLE best management for this patient?</p> <p>A. Fluoxetine B. Haloperidol C. Cognitive behavioural therapy (CBT) D. Reassurance E. Electroconvulsive Therapy (ECT)</p> <p>She has signs of depression and the thoughts of harming her baby are signs of postpartum psychosis. She needs ECT.</p> <p>Postpartum psychosis</p> <p>Usually starts with postpartum depression. Classically, they would have thoughts of harming their new born baby. She would have delusional ideas that the baby is deformed, evil or otherwise affected in some way and she has intent to kill or harm the baby</p> <p>Onset usually within the first 2-3 weeks following birth</p> <p>Management Admission to hospital (specialist mother–baby unit if possible) is usually required</p> <p>For major affective disorder there is good evidence for ECT.</p>
55.	<p>A 43 year old man attends the GP clinic complaining that his arm is dead and rotten and he wants it removed. On physical examination, the arm looks normal. What is the SINGLE most appropriate diagnosis?</p> <p>A. Somatization disorder B. Hypochondriasis C. Conversion disorder D. Nihilistic delusions E. Capgras syndrome</p> <p>Nihilistic delusions is the delusional belief that the patient has died or no longer exists or that the world has ended or is no longer real. Nothing matters any longer and continued effort is pointless. It is a feature of psychotic depressive illness. Patient may believe that he/she is dead and may ask people to bury them.</p> <p>Somatization disorder →The experience of bodily symptoms with no physical cause for them, with presumed psychological causation.. The patient refuses to accept reassurance or negative test results</p>



	<p>Hypochondriasis → is the persistent belief in the presence of an underlying serious DISEASE, e.g. cancer or HIV. The patient again refuses to accept reassurance or negative test results.</p> <p>Conversion (dissociative) disorders → typically involves loss or disturbance of normal motor or sensory function which initially appears to have a neurological or other physical cause but is later attributed to a psychological cause. The patient does not consciously feign the symptoms or seek material gain. Patients may be indifferent to their apparent disorder.</p> <p>Capgras syndrome → A type of delusional misidentification in which the patient believes that a person known to them has been replaced by a 'double' who is to all external appearances identical, but is not the 'real person'.</p>
56.	<p>A 74 year old man is depressed after his wife's death 6 months ago. He has been neglecting himself and is not eating well. He has lost 11 kg in the last 3 months. At times, he has thought about self harm but has never done it. His son found him in a very miserable state when he went to visit him last night. Unfortunately, the son is unable to care for his father due to work and other family related issues. What is the SINGLE most appropriate management?</p> <p>A. Review his mental status in 2 weeks B. Refer to a social worker C. Suggest the option of his son to moving in with his father D. Send patient to a care home E. Voluntary admission to the psychiatry ward</p> <p>The first question to ask yourself is, is this a suitable environment for a person with a depressive illness? Obviously not, and thus he should be admitted to the psychiatry ward.</p> <p>Admission should be to a ward where close observation and monitoring are possible, whenever there is significant risk of harm to self (or others)</p> <p>The ward environment is often not the quiet sanctuary patients hope for and this may lead to difficult decisions in balancing the risk of self-harm against the use of compulsory admission.</p> <p>Common reasons for hospital admission</p> <ul style="list-style-type: none">• Serious risk of suicide• Serious risk of harm to others• Significant self-neglect• Severe depressive symptoms• Severe psychotic symptoms• Lack or breakdown of social supports• Initiation of electroconvulsive therapy• Treatment-resistant depression (where inpatient monitoring may be helpful).



57.	<p>A 33 year old man attends his appointment with the psychiatrist. He says that he is no longer alive. He wants his family to bury him. What is the SINGLE most appropriate diagnosis?</p> <p>A. Somatization disorder B. Hypochondriasis C. Conversion disorder D. Nihilistic delusions E. Capgras syndrome</p> <p>Nihilistic delusions is the delusional belief that the patient has died or no longer exists or that the world has ended or is no longer real. Nothing matters any longer and continued effort is pointless. It is a feature of psychotic depressive illness. Patient may believe that he/she is dead and may ask people to bury them.</p> <p>Somatization disorder → The experience of bodily symptoms with no physical cause for them, with presumed psychological causation.. The patient refuses to accept reassurance or negative test results</p> <p>Hypochondriasis → is the persistent belief in the presence of an underlying serious DISEASE, e.g. cancer or HIV. The patient again refuses to accept reassurance or negative test results.</p> <p>Conversion (dissociative) disorders → typically involves loss or disturbance of normal motor or sensory function which initially appears to have a neurological or other physical cause but is later attributed to a psychological cause. The patient does not consciously feign the symptoms or seek material gain. Patients may be indifferent to their apparent disorder.</p> <p>Capgras syndrome → A type of delusional misidentification in which the patient believes that a person known to them has been replaced by a 'double' who is to all external appearances identical, but is not the 'real person'.</p>
58.	<p>A 37 year old woman was admitted for a femur fracture repair after a road traffic accident. On the fourth post-op day she becomes confused and starts picking on her bed sheets. She complains of seeing spiders all over her bed. What is the SINGLE most likely diagnosis?</p> <p>A. Delirium tremens B. Wernicke's encephalopathy C. Korsakoff's psychosis D. Psychotic depression E. Electrolyte imbalance</p> <p>Withdrawal of alcohol due to hospital admission often leads to delirium tremens. This is noted here by her confusion and picking on her bed sheets. This is seen a couple of days after consumption of alcohol is stopped as seen in this question.</p> <p>Wernicke's encephalopathy is unlikely as it presents with a triad of confusion, ataxia and ophthalmoplegia.</p>



	<p>Korsakoff's psychosis is characterised by the addition of antero- and retrograde amnesia and confabulation in addition to the above classic triad of Wernicke's encephalopathy.</p> <p>Psychotic depression may present with symptoms of delusions and hallucinations. But firstly, there is no history of depression here. Secondly, it is quite unlikely that the symptoms of this major depressive episode, just so happen to occur after being hospitalized. A picture of delirium tremens fits better.</p> <p>Electrolyte imbalance is again a possibility but there is no additional hints pointing towards electrolyte imbalance being a cause of confusion.</p> <p>Delirium tremens</p> <ul style="list-style-type: none">• Delirium tremens usually begins 24-72 hours after alcohol consumption has been reduced or stopped.• Seen in chronic alcoholics• The symptoms/signs differ from usual withdrawal symptoms in that there are signs of altered mental status. These can include hallucinations (auditory, visual, or olfactory), confusion, delusions, severe agitation. Seizures can also occur.
59.	<p>A 19 year old man has lack of interest and no social interactions. He has very little friends and does not talk much. He prefers solitary activities. One of his interest is in collecting toy cars. He has over 2,000 toy cars and often spends hours lining them up. What is the SINGLE most likely diagnosis?</p> <p>A. Borderline personality disorder B. Dissocial personality disorder C. Obsessive compulsive disorder D. Autism spectrum disorder E. Bipolar affective disorder</p> <p>Autism spectrum disorders are a group of lifelong developmental disorders characterized by their effect on social and communication skills as well as by a restricted, stereotyped, repetitive repertoire of interests and activities.</p> <p>It can be characterised by:</p> <ol style="list-style-type: none">1. Severe difficulties in communicating and forming relationships2. Difficulties in language3. Repetitive and obsessive behaviour



60.	<p>A 21 year old woman has had several sudden onset episodes of palpitations, sweating, nausea and overwhelming fear. On one occasion she was woken from sleep and feared she was going insane. She has no previous psychiatric disorder. What is the SINGLE most likely diagnosis?</p> <p>A. Pheochromocytoma B. Panic disorder C. Generalized anxiety disorder D. Agoraphobia E. Acute stress disorder</p> <p>Panic disorder</p> <p>Panic disorder is classified as having 2 recurrent panic attacks, which are not secondary to substance misuse, medical conditions, or another psychiatric disorder. Frequency of occurrence may vary from many attacks a day to only a few a year. Usually patients have a persistent worry about having another attack or consequences of the attack.</p> <p>Symptoms/signs</p> <ul style="list-style-type: none">• Physical symptoms/signs related to autonomic arousal (e.g. tremor, tachycardia, tachypnoea, hypertension, sweating)• Concerns of death from cardiac or respiratory problems may be a major focus, leading to patients presenting (often repeatedly) to emergency medical services.
61.	<p>A 48 year old woman who is always socially withdrawn has stopped going out of the house. She is afraid to socialize because she fears that people will criticize her. What is the SINGLE most likely diagnosis?</p> <p>A. Agoraphobia B. Post traumatic stress disorder C. Social anxiety D. Obsessive compulsive disorder E. Generalized anxiety disorder</p> <p>Social Anxiety Disorder (Social Phobia)</p> <p>Social anxiety disorder is the persistent fear and anxiety about one or more social or performance situations. It is characterized by marked fear of one or more social or performance-related situations where the person is exposed to scrutiny and in which embarrassment may occur. Exposure to social situations usually causes an anxiety reaction (may be a panic attack) that is distressing. Thus situations are either avoided or endured with discomfort.</p>



	<p>Features</p> <p>Social anxiety is a fear of being around people and having to interact with them. Sufferers fear being watched and criticised. Normal activities such as working, shopping, or speaking on the telephone are marked by persistent feelings of anxiety and self-consciousness.</p> <p>Physical symptoms include trembling, blushing, sweating and palpitations.</p> <p><u>There are two forms of the condition:</u></p> <ol style="list-style-type: none">1. Generalised social anxiety which affects most, if not all areas of life. This is the more common type and affects around 70% of sufferers.2. Performance social anxiety, where these feelings only occur in a few specific situations such as public speaking, eating in public or dealing with figures of authority.
62.	<p>A 26 year old political refugee has sought asylum in the UK. He complains of poor concentration. He keeps getting thoughts of his family whom he saw was killed in a political coup. He is unable to sleep well, feels hopeless and detached. What is the SINGLE most likely diagnosis?</p> <p>A. Acute stress disorder B. Post traumatic stress disorder C. Social phobia D. Obsessive compulsive disorder E. Generalized anxiety disorder</p> <p>Post-traumatic stress disorder (PTSD)</p> <ul style="list-style-type: none">• Develops following a traumatic event <p>Features</p> <ul style="list-style-type: none">• Re-experiencing:<ul style="list-style-type: none">◦ Flashbacks, nightmares• Avoidance:<ul style="list-style-type: none">◦ Avoiding people, situations or circumstances resembling or associated with the event• Hyperarousal<ul style="list-style-type: none">◦ Hypervigilance for threat, exaggerated startle response, sleep problems, irritability and difficulty concentrating• Emotional numbing<ul style="list-style-type: none">◦ Lack of ability to experience feelings <p>Management</p> <ul style="list-style-type: none">• Trauma-focused cognitive behavioural therapy (TF-CBT) and eye movement desensitization and reprocessing (EMDR): are first-line treatments <i>It is very common to have questions with a patient with clear symptoms of PTSD and the question would ask which is first line. If CBT is present, that is usually the answer.</i>• SSRI's would be second line. e.g. paroxetine, sertraline are licensed for PTSD. Other unlicensed possibilities include: fluoxetine, citalopram, escitalopram, and



	<p>fluvoxamine.</p> <p><i>If you find all these names of SSRI's difficult to remember. Just remember these 3 → Paroxetine, sertraline, and fluoxetine.</i></p>
63.	<p>A 20 year old woman with amenorrhoea and a body mass index is 14.8 kg/m² is still trying to lose weight. She exercises excessively and induces vomiting after her meals. What is the SINGLE most likely diagnosis?</p> <p>A. Anorexia nervosa B. Bulimia nervosa C. Obsessive compulsive disorder D. Severe depression E. Body dysmorphic disorder</p> <p>Anorexia nervosa Anorexia nervosa is the most common cause of admissions to child and adolescent psychiatric wards. It is most commonly seen in young women in which there is marked distortion of body image, pathological desire for thinness, and self-induced weight loss by a variety of methods.</p> <p>Features</p> <ul style="list-style-type: none">• BMI <17.5kg/m² or < 85% of that expected• Self-induced weight loss → reduce food intake, vomiting, purging, excessive exercise.• Intense fear of being obese• Disturbance of weight perception• Endocrine disorders such that cause amenorrhoea, reduced sexual interest/impotence, raised GH levels, raised cortisol, altered TFTs, abnormal insulin secretion• Bradycardia• Hypotension
64.	<p>A 17 year old woman has been diagnosed with anorexia nervosa. She has mild depressive symptoms and has reduced her food intake in the last 8 months. She exercises daily and admits to inducing vomiting occasionally after a meal. Her body mass index is 16.8 kg/m². She has a blood pressure of 95/65 mmHg and a heart rate of 70 beats/minute. What is the SINGLE most appropriate management?</p> <p>A. Refer to eating disorder service B. Refer to dietician C. Admit to medical ward D. Admit to psychiatry ward E. Start antidepressants</p> <p>She falls into the category of moderate anorexia. Admission to the hospital is not warranted because her blood pressure, heart rate are fine and her BMI is still above 15. Referral to an eating disorder unit or service would be the most appropriate.</p>



	<p>No drug treatments for anorexia nervosa are validated by good randomized trials although fluoxetine prevents relapse in open trials. Nonetheless, do not pick antidepressants when it is the option for management of anorexia nervosa for this exam.</p> <p><u><i>BMI <15kg/m², rapid weight loss + evidence of system failure</i></u></p> <ul style="list-style-type: none">requires urgent referral to eating disorder unit (EDU), medical unit (MU) or paediatric medical wards <p><u><i>In moderate anorexia (BMI 15–17.5, no evidence of system failure)</i></u></p> <ul style="list-style-type: none">routine referral can be to the local community mental health team or eating disorder unit (EDU) if available <p><u><i>In mild anorexia (BMI >17.5)</i></u></p> <ul style="list-style-type: none">focus on building a trusting relationship and encouraging use of self-help books and a food diary <p>Anorexia nervosa</p> <p>Anorexia nervosa is the most common cause of admissions to child and adolescent psychiatric wards. It is most commonly seen in young women in which there is marked distortion of body image, pathological desire for thinness, and self-induced weight loss by a variety of methods.</p> <p>Features</p> <ul style="list-style-type: none">BMI <17.5kg/m² or < 85% of that expectedSelf-induced weight loss → reduce food intake, vomiting, purging, excessive exercise.Intense fear of being obeseDisturbance of weight perceptionEndocrine disorders such that cause amenorrhoea, reduced sexual interest/impotence, raised GH levels, raised cortisol, altered TFTs, abnormal insulin secretionBradycardiaHypotension
65.	<p>A couple has just finished their detox regime and wants a drug with a pharmacological action to serve as a deterrent when they take alcohol. What is the SINGLE most appropriate medication to start?</p> <p>A. Disulfiram B. Acamprosate C. Vitamin supplement D. Naloxone E. Chlordiazepoxide</p> <p>Alcohol, a drinking problem The general idea for is:</p>



	<ul style="list-style-type: none">• Disulfiram<ul style="list-style-type: none">• Acts as a deterrent → Some five to 10 minutes after alcohol intake, the patient may experience the effects of a severe hangover for a period of 30 minutes up to several hours.• Acamprosate<ul style="list-style-type: none">• Reduces cravings
66.	<p>A 35 year old schizophrenic man hears voices narrating his actions like “he is going to the toilet” and “he is leaving the house”. What is the SINGLE most likely type of hallucinations involved?</p> <p>A. First-person auditory hallucinations B. Second-person auditory hallucinations C. Third-person auditory hallucinations D. Echo de la pensee E. Gedankenlautwerden</p> <p>Third-person auditory hallucinations</p> <p>Auditory hallucinations characteristic of schizophrenia where voices are heard referring to the patient as ‘he’ or ‘she’, rather than ‘you’. For example "She is an evil person".</p> <p>Sometimes the voices are of a running commentary. Example, the patient hears one or more voices providing a narrative of their current actions, ‘he’s getting up...now he’s going towards the window’.</p>
67.	<p>A 22 year old man was rushed into the emergency department. He describes recurrent episodes of fearfulness, palpitations, with peri-oral tingling and cramping of the hands. His symptoms last 5 - 10 minutes. He is worried he may be having a heart attack. An ECG shows sinus tachycardia. He has a respiratory rate of 34 breaths/minute. What is the SINGLE most appropriate immediate intervention?</p> <p>A. High flow oxygen B. IV sedation C. Rebreath into a paper bag D. Alprazolam E. Refer to cardiac team urgently</p> <p>In panic attacks, perioral paresthesia, tingling and numbness in the hands can occur due to hyperventilation and CO2 washout leading to low ionic calcium. Rebreath into a paper bag will help to increase CO2 levels and resolve symptoms.</p> <p>Panic attacks</p> <p>Period of intense fear characterized by a constellation of symptoms that develop rapidly, reach a peak of intensity in about 10min, and generally do not last longer than 20–30min</p>



	<p>(rarely over 1 hour). Attacks may be either spontaneous ('out of the blue') or situational (usually where attacks have occurred previously).</p> <p>Symptoms/signs</p> <ul style="list-style-type: none">• Tremor• Tachycardia• Tachypnoea,• Sweating• Concerns of death from cardiac or respiratory problems <p>They may complain of dizziness, circumoral paraesthesia, carpopedal spasm, and occasionally sharp or stabbing chest pain. Initial examination would reveal tachypnoea with equal air entry over both lung fields, and no wheeze or evidence of airway obstruction. It is important to consider secondary causes (such as PE or DKA). Therefore, perform the following investigations:</p> <ul style="list-style-type: none">• SpO₂• ECG• ABG if SpO₂ ↓ , or if symptoms do not completely settle in a few minutes• BMG <p>If symptoms do not completely settle in a few minutes, obtain:</p> <ul style="list-style-type: none">• CXR• U&E, blood glucose, FBC <p>Treatment</p> <p>Do not sedate a patient who is hyperventilating. Once serious diagnoses have been excluded, use this information to help reassure the patient with primary hyperventilation. Often this is all that is required, but it may be helpful to try simple breathing exercises (e.g. breathe in through nose)</p>
68.	<p>A 33 year old man with alternating mood swings and episodes mood elevation to depression underwent treatment and improvement was seen in his mood swings. What SINGLE medication is needed to be continued to prevent his alternating moods?</p> <p>A. Anxiolytics B. Mood stabilizers C. Antidepressants D. Antipsychotics E. Stimulants</p> <p>Bipolar affective disorder (commonly known as manic depression) Classically, periods of prolonged and profound <i>depression</i> alternate with periods of excessively elevated and irritable mood, known as <i>mania</i>.</p> <p>Most people who battle with the effects of the disorder would rather live a normal life, free from the unpredictability of mood swings, which most of us take for granted.</p>



	<p>The symptoms of mania characteristically include:</p> <ul style="list-style-type: none">• Decreased need for sleep• Pressured speech• Increased libido• Reckless behaviour without regard for consequences• Grandiosity• More talkative than usual <p>These symptoms of mania would alternate with depression</p> <p>Treatment Mood stabilizers (Lithium)- Despite problems with tolerability, lithium still remains the gold standard in the treatment of bipolar affective disorder.</p>
69.	<p>A 30 year old woman who suffered from depression a few years ago has recently spent a substantial amount of money buying new clothes. She goes out almost every night with her friends. She would not allow any of her friends to choose the restaurant for dinner as she believes she knows the best places to eat. She sleeps less than usual and fills her days with as many activities as she can. What is the SINGLE most likely diagnosis?</p> <p>A. Mania B. Depression C. Bipolar affective disorder D. Borderline personality disorder E. Hypomania</p> <p>There is a history of depression and symptoms of mania. This would be a classic scenario that PLAB would give when they would like you to pick Bipolar disorder.</p> <p>Bipolar affective disorder (commonly known as manic depression) Classically, periods of prolonged and profound depression alternate with periods of excessively elevated and irritable mood, known as mania.</p> <p>Most people who battle with the effects of the disorder would rather live a normal life, free from the unpredictability of mood swings, which most of us take for granted.</p> <p>The symptoms of mania characteristically include:</p> <ul style="list-style-type: none">• Decreased need for sleep• Pressured speech• Increased libido• Reckless behaviour without regard for consequences• Grandiosity• More talkative than usual <p>These symptoms of mania would alternate with depression</p>



	<p>Treatment</p> <p>Mood stabilizers (Lithium)- Despite problems with tolerability, lithium still remains the gold standard in the treatment of bipolar affective disorder.</p>
70.	<p>A 21 year old man was brought by his friends unconscious from a party where he was said to have drank vodka. While he was being attended to by the doctor in the emergency department, he became conscious and said the green tie the attending doctor was wearing was talking to him. On examination, his pupils were dilated. What substance could this patient have taken?</p> <p>A. Cocaine B. Alcohol C. Heroin D. Cannabis E. LSD</p> <p>LSD (lysergic acid diethylamide)</p> <p>LSD causes visual hallucinations, agitation, excitement, tachycardia and dilated pupils. Hypertension and pyrexia may occur. Paranoid delusions may require sedation. Massive overdose of LSD is rare, but may cause coma, respiratory arrest and coagulation disturbances. Treat supportively.</p> <p>For all hallucinogens, acute psychotic features should in general be managed by admission, maintenance of a safe environment, symptomatic treatment of agitation (e.g. with benzodiazepine), with expectation of resolution.</p>
71.	<p>A 38 year old woman who gave birth 6 weeks ago presents to her local GP surgery with her husband. She describes 'crying all the time' and 'not bonding' with her baby. She is worried about baby's health constantly and she is unsure if is able to cope with this new change in her life. What is the SINGLE most likely diagnosis?</p> <p>A. Postpartum blues B. Postnatal depression C. Postpartum psychosis D. Anxiety disorder E. Obsessive compulsive disorder (OCD)</p> <p>Postnatal depression</p> <p>A significant depressive episode, temporally related to childbirth, within 6 months usually peaking at 3 to 4 weeks</p>

**Clinical features**

similar to other depressive episodes, although thought content may include worries about the baby's health or her ability to cope adequately with the baby. There may be a significant anxiety component.

Management

Depressive episode treated in usual way with antidepressants and/or brief CBT, if severe or associated with thoughts of self-harm or harm to baby, may require hospital admission.

Comparison of Postpartum Blues , Postnatal Depression, Postpartum Psychosis

	Postpartum Blues	Postnatal Depression	Postpartum Psychosis
Onset	Starts at two or three days after birth and lasts 1–2 days	Peaks at 3 to 4 weeks postpartum	Peaks at 2 weeks postpartum
Mother cares for baby	Yes	Yes	Thoughts of harming baby
Symptoms	Mostly crying	Symptoms of depression: Feels that she is not capable of looking after her child Feels as if she will not be a good mother Tearful, Anxiety Worries about baby's health	Psychotic symptoms E.g. hears voices saying baby is evil Insomnia Disorientation Thoughts of suicide
Treatment	Reassurance and explanation	Antidepressants or CBT	In PLAB, answer would be ECT



72. A 10 year old boy with behavioural problems is taken to the clinic by his parents. During the appointment, the boy barks and shouts expletives. He is constantly blinking his eyes and unable to sit still. What is the SINGLE most likely diagnosis?

- A. Asperger syndrome
- B. Cotard syndrome
- C. Rett syndrome
- D. Ekbom syndrome
- E. Tourette's syndrome**

This is a classic scenario for Tourette's syndrome in PLAB 1. Other clues that may appear on PLAB 1 may be the child yelling in class intermittently or shouting expletives. Most Tourette's syndromes are diagnosed at 6-8 years, maximum to the age of 13.

The other syndromes are less likely to be the answer:

Asperger syndrome → Characterized by severe persistent impairment in reciprocal social interactions, repetitive behaviour patterns, and restricted interests. IQ and language are normal or, in some cases, superior. Although tics (like the above case) can also be found in asperger syndrome, it is more specific for Tourette's syndrome. Not to mention, the question would include an impairment of social skills if the PLAB examiners wanted you to have picked Asperger syndrome.

Cotard's syndrome → is a rare mental illness in which an afflicted person holds the delusion that they are dead

Rett's syndrome → There is normal development for 2-3yrs, followed by a loss of acquired motor, language, and social skills between ages 3 and 4yrs. Stereotypies and compulsions are common.

Ekbom's syndrome → Also called restless leg syndrome. Unpleasant, often painful sensations in the legs, particularly on sleep onset

Tourette's syndrome

Presentation:

- Young (6-8 years old) mostly male
- Repetitive movements or gestures that are disruptive in the classroom or to people around the child (can be motor or vocal) → Tics
- Jerks, blinks, sniffs, nods, spitting, stuttering, irrepressible explosive obscene verbal ejaculations, grunts, and squeaks

Diagnosis:

- Clinical diagnosis

Treatment:

- Risperidone or haloperidol
- Behavioral therapy - Habit-reversal training



73.	<p>A 26 year old man strongly believes that every elderly man he meets is likely to be his father. Although they look different, he is sure it is his father wearing a different disguise. What is the SINGLE most likely kind of delusion this man is suffering from?</p> <p>A. Persecutory delusion B. Erotomania C. Grandiose delusions D. Frégoli delusion E. Delusion of reference</p> <p>Frégoli delusion → is when a person holds a delusional belief that different people are in fact a single person who changes appearance or is in disguise.</p> <p>Persecutory delusion → is a delusional belief that one's life is being interfered with in a harmful way. It refers to false beliefs or perceptions in which a person believes that they are being treated with malicious intent, hostility, or harassment despite significant evidence to suggest otherwise. This may occur in the context of being tormented, followed, or spied on.</p> <p>Erotomania → is the delusional belief that another person, usually of higher social status, is secretly in love with them. The sufferer may also believe that the subject of their delusion secretly communicates their love through seemingly innocuous acts, or if they are a public figure through clues in the media. The object of the delusion usually has little or no contact with the sufferer.</p> <p>Grandiose delusions → or delusions of grandeur is the fantastical beliefs that one is famous, omnipotent, wealthy, or otherwise very powerful. They believe that they have exceptional abilities or talents and keep praising themselves.</p> <p>Delusion of reference → is the false belief that insignificant remarks, events, or objects in one's environment have personal meaning or significance. Example, someone constantly gives him or her a special messages through the newspaper.</p>
74.	<p>A 68 year old woman has been admitted with poor appetite, weight loss, poor concentration and self neglect for 3 weeks. She has not been eating or drinking adequately and has rarely left her bed. She expresses suicidal ideas and hears voices telling her she is worthless. She has been on antidepressant therapy for the past 3 months with no improvement. What is the SINGLE most appropriate management?</p> <p>A. Additional antidepressants B. Cognitive behavioural therapy C. Interpersonal therapy D. Electroconvulsive therapy E. Antipsychotics</p> <p>This lady has symptoms of severe depression with hallucinations (hearing voices telling her she is worthless) making the diagnosis of psychotic depression. Electroconvulsive therapy</p>



	<p>(ECT) would be appropriate since she is having psychotic symptoms and is not eating well.</p> <p>Electroconvulsive therapy (ECT)</p> <ul style="list-style-type: none">• A highly effective treatment for depression (particularly with psychotic symptoms)• It may act more rapidly than antidepressant medication <p>Guidance on the use of electroconvulsive therapy (May 2003)</p> <ul style="list-style-type: none">• ECT is used only to achieve rapid and short-term improvement of severe symptoms after an adequate trial of other treatment options has proven ineffective and/or when the condition is considered to be life threatening, in individuals with severe depressive illness• The current state of the evidence did not allow the general use of ECT in the management of schizophrenia to be recommended• ECT is not recommended as a maintenance therapy in depressive illness because the longer-term benefits and risks of ECT have not been clearly established.
75.	<p>A 28 year old woman complains of hearing strange voices in her bedroom as she is falling asleep in the night. She says there is no one in the room except for her. She is otherwise healthy and without mental illness. What is the SINGLE most likely diagnosis?</p> <p>A. Persecutory delusion B. Cotard syndrome C. Hypnagogic hallucinations D. Capgras syndrome E. Othello syndrome</p> <p>Hypnagogic hallucination → is a transient false perception experienced while on the verge of falling asleep (e.g. hearing a voice calling one's name which then startles you back to wakefulness to find no-one there). The same phenomenon experienced while waking up is called hypnopompic hallucination. Frequently experienced by healthy people and so not a symptom of mental illness.</p> <p>Persecutory delusion → is a delusional belief that one's life is being interfered with in a harmful way. It refers to false beliefs or perceptions in which a person believes that they are being treated with malicious intent, hostility, or harassment despite significant evidence to suggest otherwise. This may occur in the context of being tormented, followed, or spied on</p> <p>Cotard syndrome → is a presentation of psychotic depressive illness characterised by a combination of severely depressed mood with nihilistic delusions. The patient may state that he is already dead and should be buried. He may state that his insides have stopped working and are rotting away, or that he has stopped existing altogether.</p> <p>Capgras syndrome → A type of delusional misidentification in which the patient believes that a person known to them has been replaced by a 'double' who is to all external appearances identical, but is not the 'real person'.</p>



	<p>Othello Syndrome → is a type of delusional jealousy, marked by suspecting a faithful partner of infidelity like cheating, adultery or having an affair. The patient may attempt monitoring his spouse or partner.</p>
76.	<p>A 19 year old man accuses his friend of making his right arm swing out to hit a stranger at the park. There is no evidence of this as his friend was at home at that time. What is the SINGLE most appropriate term to describe his condition?</p> <p>A. Delusion of control B. Persecutory delusion C. Grandiose delusions D. Delusion of reference E. Thought insertion</p> <p>Delusion of control → is the false belief that another person, group of people, or external force controls one's general thoughts, feelings, impulses, or behavior.</p> <p>Persecutory delusion → is a delusional belief that one's life is being interfered with in a harmful way. It refers to false beliefs or perceptions in which a person believes that they are being treated with malicious intent, hostility, or harassment despite significant evidence to suggest otherwise. This may occur in the context of being tormented, followed, or spied on.</p> <p>Grandiose delusions → or delusions of grandeur is the fantastical beliefs that one is famous, omnipotent, wealthy, or otherwise very powerful. They believe that they have exceptional abilities or talents and keep praising themselves.</p> <p>Delusion of reference → is the false belief that insignificant remarks, events, or objects in one's environment have personal meaning or significance. Example, someone constantly gives him or her a special messages through the newspaper.</p> <p>Thought insertion → The delusional belief that thoughts are being placed in the patient's head from outside</p>
77.	<p>A 29 year old man was has been severely depressed over the last 3 years now believes that he does not exist and never existed in this world. He has poor eye contact and speaks softly. He says that people around him are unable to listen and see him because he is inaudible and invisible. What SINGLE kind of delusion is he suffering from?</p> <p>A. Nihilistic delusions B. Delusion of guilt C. Persecutory delusion D. Frégoli delusion E. Clang association</p> <p>Nihilistic delusions → is the delusional belief that the patient has died or no longer exists or that the world has ended or is no longer real. Nothing matters any longer and continued</p>



	<p>effort is pointless. It is a feature of psychotic depressive illness. Patient may believe that he/she is dead and may ask people to bury them.</p> <p>Delusion of guilt → involves feeling guilty or remorseful for no valid reason. An example would be someone that believes they were responsible for a war in another country or hurricane damage in another state. The object of delusion believes that they deserve to be punished for their sins.</p> <p>Persecutory delusion → is a delusional belief that one's life is being interfered with in a harmful way. It refers to false beliefs or perceptions in which a person believes that they are being treated with malicious intent, hostility, or harassment despite significant evidence to suggest otherwise. This may occur in the context of being tormented, followed, or spied on.</p> <p>Frégoli delusion → is when a person holds a delusional belief that different people are in fact a single person who changes appearance or is in disguise.</p> <p>Clang association → is an abnormality of speech where the connection between words is their sound rather than their meaning. May occur during manic flight of ideas. Clang associations generally sound a bit like rhyming poetry, except that the poems don't seem to make any sense. Example, one may say "systematic, sympathetic, quite pathetic, apologetic, paramedic, your heart is prosthetic.</p>
78.	<p>A 27 year old woman finds herself with palpitations and dizziness whenever she is in a meeting at the office. She is very self-conscious and feels that her colleagues are judging her in a harsh way in meetings. She has been asked to present in one of the meetings but she called in sick to avoid being criticised. What is the SINGLE most likely diagnosis?</p> <p>A. Agoraphobia B. Generalized anxiety disorder C. Panic disorder D. Depression E. Social phobia</p> <p>Social Anxiety Disorder (Social Phobia)</p> <p>Social anxiety disorder is the persistent fear and anxiety about one or more social or performance situations. It is characterized by marked fear of one or more social or performance-related situations where the person is exposed to scrutiny and in which embarrassment may occur. Exposure to social situations usually causes an anxiety reaction (may be a panic attack) that is distressing. Thus situations are either avoided or endured with discomfort.</p> <p>Features</p> <p>Social anxiety is a fear of being around people and having to interact with them. Sufferers fear being watched and criticised. Normal activities such as working, shopping, or speaking on the telephone are marked by persistent feelings of anxiety and self-consciousness.</p>



	<p>Physical symptoms include trembling, blushing, sweating and palpitations.</p> <p><u>There are two forms of the condition:</u></p> <ol style="list-style-type: none">1. Generalised social anxiety which affects most, if not all areas of life. This is the more common type and affects around 70% of sufferers.2. Performance social anxiety, where these feelings only occur in a few specific situations such as public speaking, eating in public or dealing with figures of authority.
79.	<p>A 24 year man finds it difficult to come out of a room without having to turn the light switch off and on 3 times. He has tried more than several times to go out of the room without having to do this particular compulsion however he still returns to the room feeling agitated that it was not done. What is the SINGLE most appropriate management?</p> <p>A. Cognitive behavioural therapy B. Selective serotonin reuptake inhibitors (SSRIs) C. Antipsychotics D. MAO inhibitors E. Electroconvulsive therapy (ECT)</p> <p>The diagnosis here is obsessive-compulsive disorder (OCD). Exposure and response prevention (ERP) is included in cognitive behavioural therapy (CBT) in treatment for those who present with OCD. The method is predicated on the idea that a therapeutic effect is achieved as subjects confront their fears and discontinue their escape response. In this case, the patient would be exposed to his feared stimulus, and would refuse to respond with any safety behaviors.</p> <p>SSRIs are also a treatment choice for OCD. But as this is only a mild functional impairment, ERP would be a more appropriate answer. NICE CKS has very specific guidelines for obsessive-compulsive disorder (OCD)</p> <p>In the initial treatment of adults with OCD, low intensity psychological treatments (including Exposure and Response Prevention (ERP)) should be offered if the patient's degree of functional impairment is mild and/or the patient expresses a preference for a low intensity approach. Low intensity treatments include brief individual or group CBT (including ERP)</p> <p>Adults with OCD with mild functional impairment who are unable to engage in low intensity CBT (including ERP), or for whom low intensity treatment has proved to be inadequate, should be offered the choice of either a course of an SSRI or more intensive CBT (including ERP).</p> <p>Obsessive-compulsive disorder (OCD)</p> <p>A common, chronic condition, often associated with marked anxiety and depression, characterized by 'obsessions'.</p> <p>It is characterized by recurrent obsessions or compulsions that are recognized by the individual as unreasonable. Obsessions are anxiety-provoking, intrusive thoughts, commonly</p>



	<p>concerning contamination, doubt, guilt, aggression, and sex. Compulsions are peculiar behaviors that reduce anxiety, commonly hand-washing, organizing, checking, counting, and praying.</p> <p>Management</p> <p>CBT is recommended by NICE, but essentially takes a behavioural approach, including exposure and response prevention (ERP).</p> <p>SSRIs (licensed): escitalopram, fluoxetine, sertraline or paroxetine should be considered first-line (no clear superiority of any one agent). Other (unlicensed) agents include citalopram</p> <p>For PLAB, electroconvulsive therapy (ECT) would be the answer for treatment of OCD, if the patient is suicidal or severely incapacitated</p>
80.	<p>A 33 year old man tries not to go outside his house because he thinks that people will look at him and talk about him. He finds difficulty when talking with his peers in a restaurant or under social settings. He avoids these situations as they cause him distress. What is the SINGLE most likely diagnosis?</p> <p>A. Agoraphobia B. Generalized anxiety disorder C. Panic disorder D. Adjustment disorder E. Social phobia</p> <p>Social Anxiety Disorder (Social Phobia)</p> <p>Social anxiety disorder is the persistent fear and anxiety about one or more social or performance situations. It is characterized by marked fear of one or more social or performance-related situations where the person is exposed to scrutiny and in which embarrassment may occur. Exposure to social situations usually causes an anxiety reaction (may be a panic attack) that is distressing. Thus situations are either avoided or endured with discomfort.</p> <p>Features</p> <p>Social anxiety is a fear of being around people and having to interact with them. Sufferers fear being watched and criticised. Normal activities such as working, shopping, or speaking on the telephone are marked by persistent feelings of anxiety and self-consciousness.</p> <p>Physical symptoms include trembling, blushing, sweating and palpitations.</p> <p><u>There are two forms of the condition:</u></p> <ol style="list-style-type: none">1. Generalised social anxiety which affects most, if not all areas of life. This is the more common type and affects around 70% of sufferers.2. Performance social anxiety, where these feelings only occur in a few specific situations such as public speaking, eating in public or dealing with figures of authority.



81.	<p>A 71 year old woman looks disheveled, unkempt and with poor eye contact. She has recently lost her husband 2 months ago. She feels hopeless and has been tearful all week. Which SINGLE option describes her condition?</p> <p>A. Anxiety B. Hallucinations C. Mania D. High mood E. Low mood</p> <p>She has symptoms of a depression.</p> <p>Depressive symptoms</p> <p>One of the most common referrals in liaison psychiatry is of patients with low mood.</p> <p>Patients may present with low mood, tearfulness, hopelessness regarding recovery, biological depressive features (poor sleep, appetite, energy, and concentration)</p>
82.	<p>A 33 year old man with a history of severe depression says his insides are rotting and nobody has bothered to bury him. He feels the world no longer exist and nothing matters. His gaze is always downwards and has barely any eye contact with anyone. What SINGLE best term describes his condition?</p> <p>A. Nihilistic delusions B. Delusion of guilt C. Persecutory delusion D. Frégoli delusion E. Clang association</p> <p>Nihilistic delusions → is the delusional belief that the patient has died or no longer exists or that the world has ended or is no longer real. Nothing matters any longer and continued effort is pointless. It is a feature of psychotic depressive illness. Patient may believe that he/she is dead and may ask people to bury them.</p> <p>Delusion of guilt → involves feeling guilty or remorseful for no valid reason. An example would be someone that believes they were responsible for a war in another country or hurricane damage in another state. The object of delusion believes that they deserve to be punished for their sins.</p> <p>Persecutory delusion → is a delusional belief that one's life is being interfered with in a harmful way. It refers to false beliefs or perceptions in which a person believes that they are being treated with malicious intent, hostility, or harassment despite significant evidence to suggest otherwise. This may occur in the context of being tormented, followed, or spied on.</p> <p>Frégoli delusion → is when a person holds a delusional belief that different people are in fact a single person who changes appearance or is in disguise.</p>



	<p>Clang association → is an abnormality of speech where the connection between words is their sound rather than their meaning. May occur during manic flight of ideas. Clang associations generally sound a bit like rhyming poetry, except that the poems don't seem to make any sense. Example, one may say “systematic, sympathetic, quite pathetic, apologetic, paramedic, your heart is prosthetic.</p>
83.	<p>A 24 year old male on remand in prison for murder is referred by the prison doctor. He is noted to be behaving oddly in prison and complains of hallucinating. He has a previous history of IV drug abuse. On questioning, he provides repeated wrong answers to questions nonetheless, his answers are in the correct category. An example, when asked who is the prime minister of England, he answers Bill Clinton. What is the SINGLE most likely diagnosis?</p> <p>A. Capgras syndrome B. Cotard syndrome C. Ganer syndrome D. Somatization disorder E. Hypochondriasis</p> <p>Ganer syndrome → is a type of factitious disorder, a mental illness in which a person deliberately and consciously acts as if he or she has a physical or mental illness. They mimic behavior that is typical of a mental illness, such as schizophrenia. It is also sometimes called prison psychosis, because the syndrome occurs most frequently in prison inmates, where it may represent an attempt to gain leniency from prison or court officials. They produce ‘approximate answers’. They may give repeated wrong answers to questions which are nonetheless ‘in the right ballpark’. Example, ‘what is the capital of Scotland?’ Answer ‘Paris’. These symptoms may occasionally be associated with organic brain illness but it is much more commonly seen as a form of malingering in those attempting to feign mental illness usually prisoners awaiting trial.</p> <p>Capgras syndrome → A type of delusional misidentification in which the patient believes that a person known to them has been replaced by a ‘double’ who is to all external appearances identical, but is not the ‘real person’.</p> <p>Cotard syndrome → is a presentation of psychotic depressive illness characterised by a combination of severely depressed mood with nihilistic delusions. The patient may state that he is already dead and should be buried. He may state that his insides have stopped working and are rotting away, or that he has stopped existing altogether.</p> <p>Somatization disorder → The experience of bodily symptoms with no physical cause for them, with presumed psychological causation.. The patient refuses to accept reassurance or negative test results</p> <p>Hypochondriasis → is the persistent belief in the presence of an underlying serious DISEASE, e.g. cancer or HIV. The patient again refuses to accept reassurance or negative test results.</p>



84.	<p>A 18 year old boy was recently sent to juvenile detention center after he set his father's car on fire. He lacks remorse for setting the car on fire and says he would do it again if he had the chance to. He has always found it difficult to conform to social rules and has no regard for the rights of others. What is the SINGLE most likely diagnosis?</p> <p>A. Acute psychosis B. Antisocial personality disorder C. Mania D. Borderline personality disorder E. Schizophrenia</p> <p>Antisocial Personality disorder</p> <p>Characterized by continuous antisocial or criminal acts, inability to conform to social rules, impulsivity, disregard for the rights of others, aggressiveness, and lack of remorse. They will typically be manipulative, deceitful and reckless.</p> <p>Like other types of personality disorder, antisocial personality disorder is on a spectrum, which means it can range in severity from occasional bad behaviour to repeatedly breaking the law and committing serious crimes. Psychopaths are considered to have a severe form of antisocial personality disorder</p>
85.	<p>An 18 year old girl with a body mass index of 17.8 kg/m² has bilateral parotid swelling with thickened calluses on the dorsum of her hand. What is the SINGLE most likely diagnosis?</p> <p>A. Bulimia nervosa B. Anorexia nervosa C. Crohn's disease D. Mumps E. Sarcoidosis</p> <p>This question is not entirely specific. Usually for a bulimia nervosa question to appear, the stem would give more of a history which includes either fasting, or intensive exercise. Self-induced vomiting would be too obvious for the question writers to give.</p> <p>Bilateral parotid swelling and thickened calluses on the knuckles from self induced vomiting may be found on examination in bulimia nervosa.</p> <p>Bulimia nervosa</p> <p>Bulimia nervosa is an eating disorder characterised by repeated episodes of uncontrolled overeating (binges) followed by compensatory weight loss behaviours.</p> <p>Features:</p> <ul style="list-style-type: none">• Excessive preoccupation with body weight and shape• Compensatory weight control mechanisms which can be:<ul style="list-style-type: none">• Self-induced vomiting



	<ul style="list-style-type: none">• Fasting• Intensive exercise• Abuse of medication such as laxatives, diuretics, thyroxine or amphetamines <p>Note that a person with bulimia nervosa does not necessarily need to be thin. They sometimes maintained a BMI above 17.5 kg/m².</p> <p>Examination:</p> <ul style="list-style-type: none">• Salivary glands (especially the parotid) may be swollen.• Russell's sign may be present (calluses form on the back of the hand, caused by repeated abrasion against teeth during inducement of vomiting).• There may be erosion of dental enamel due to repeated vomiting.
86.	<p>A 44 year old man is very depressed and miserable after his wife's death 6 months ago. He sees no point in living now that his wife is not around. He feels regret and wishes he never existed. He refuses any medical help offered. His son has brought him to the emergency department. The son mentions that he can not deal with the father's depression any longer as he has a job and family that to attend to. What is the SINGLE most appropriate next step?</p> <p>A. Voluntary admission to psychiatric ward B. Compulsory admission under Mental Health Act C. Refer to social services D. Alternate housing E. Electroconvulsive therapy</p> <p>This patient is refusing any help offered thus voluntary admission to psychiatric ward is not possible. Compulsory admission under Mental Health Act is the most appropriate answer. The Mental Health Act 1983 is the law in England and Wales that allows people with a 'mental disorder' to be admitted to hospital, detained and treated without their consent – either for their own health and safety, or for the protection of other people.</p>
87.	<p>A 22 year man finds it difficult to come out of a room without having to turn the light switch off and on 3 times. He has tried more than several times to go out of the room without having to do this particular compulsion however he still returns to the room feeling agitated that it was not done. He recognizes that he has a problem and is willing to see a psychiatrist. What is the SINGLE most accurate term that describes this situation?</p> <p>A. Nihilistic delusions B. Thought insertion C. Thought block D. Panic attack E. Insight</p> <p>Insight In psychology and psychiatry, insight can mean the ability to recognize one's own mental illness. This form of insight has multiple dimensions, such as recognizing the need for treatment, and recognizing consequences of one's behavior as stemming from an illness.</p>



	<p>For example, people with obsessive compulsive disorder and various phobias tend to have relatively good insight that they have a problem and that their thoughts and/or actions are unreasonable, yet are compelled to carry out the thoughts and actions regardless.</p> <p>In general, a patient with insight is a patient who knows that their symptoms represent abnormality and seeks their diagnosis and appropriate treatment.</p>
88.	<p>A 30 year old woman comes to clinic in tears trying to describe the constant irritability she is in when dealing with her 2 small children. She describes herself as easily startled. She is unable to concentrate for long but attributes it to poor sleep as she often gets nightmares of a house fire. Her husband died in a house fire while she was sleeping in the other room last year. What is the SINGLE most appropriate management?</p> <p>A. Reassurance B. Relaxation therapy C. Quetiapine D. Lofepramine E. Fluoxetine</p> <p>This woman is suffering from post-traumatic stress disorder. Fluoxetine is an SSRI. SSRIs are used second to CBT. As CBT was not an option in this question, fluoxetine would be the next best choice.</p> <p>Post-traumatic stress disorder (PTSD)</p> <ul style="list-style-type: none">• Develops following a traumatic event <p>Features</p> <ul style="list-style-type: none">• Re-experiencing:<ul style="list-style-type: none">◦ Flashbacks, nightmares• Avoidance:<ul style="list-style-type: none">◦ Avoiding people, situations or circumstances resembling or associated with the event• Hyperarousal<ul style="list-style-type: none">◦ Hypervigilance for threat, exaggerated startle response, sleep problems, irritability and difficulty concentrating• Emotional numbing<ul style="list-style-type: none">◦ Lack of ability to experience feelings <p>Management</p> <ul style="list-style-type: none">• Trauma-focused cognitive behavioural therapy (TF-CBT) and eye movement desensitization and reprocessing (EMDR): are first-line treatments <p><i>It is very common to have questions with a patient with clear symptoms of PTSD and the question would ask which is first line. If CBT is present, that is usually the answer.</i></p>



	<ul style="list-style-type: none">SSRI's would be second line. e.g. paroxetine, sertraline are licensed for PTSD. Other unlicensed possibilities include: fluoxetine, citalopram, escitalopram, and fluvoxamine. <p><i>If you find all these names of SSRI's difficult to remember. Just remember these 3 → Paroxetine, sertraline, and fluoxetine.</i></p>
89.	<p>A 19 year old female is brought to the hospital by her parents. They are concerned about her weight. Her body mass index is 12.1 kg/m². She has a mildly depressed mood and has low self-esteem. She has amenorrhoea. She has reduced her food intake in the past couple of months. She has a blood pressure of 70/50 mmHg and a heart rate of 44 beats/minute. What is the SINGLE most appropriate management?</p> <p>A. Start antidepressants B. Family counselling C. Social service D. Admission to the psychiatry ward E. Admission to the medical ward</p> <p>It is clear that she is suffering from anorexia nervosa. Her BMI is critically low thus medical admission is warranted to provide her with proper nutrition. A pulse rate lower than 45 beats/minute and hypotension raises great concern and is definitely a criteria for hospital admission. The most common cause of death in patients with anorexia nervosa is due to cardiac complications. This is why they are admitted to medical wards and not psychiatry wards when the condition is severe.</p> <p><u>BMI <15kg/m², rapid weight loss + evidence of system failure</u></p> <ul style="list-style-type: none">requires urgent referral to eating disorder unit (EDU), medical unit (MU) or paediatric medical wards <p><u>In moderate anorexia (BMI 15–17.5, no evidence of system failure)</u></p> <ul style="list-style-type: none">routine referral can be to the local community mental health team or eating disorder unit (EDU) if available <p><u>In mild anorexia (BMI >17.5)</u></p> <ul style="list-style-type: none">focus on building a trusting relationship and encouraging use of self-help books and a food diary <p>Anorexia nervosa Anorexia nervosa is the most common cause of admissions to child and adolescent psychiatric wards. It is most commonly seen in young women in which there is marked distortion of body image, pathological desire for thinness, and self-induced weight loss by a variety of methods.</p> <p>Features</p>



	<ul style="list-style-type: none">• BMI <17.5kg/m² or < 85% of that expected• Self-induced weight loss → reduce food intake, vomiting, purging, excessive exercise.• Intense fear of being obese• Disturbance of weight perception• Endocrine disorders such that cause amenorrhoea, reduced sexual interest/impotence, raised GH levels, raised cortisol, altered TFTs, abnormal insulin secretion• Bradycardia• Hypotension
90.	<p>A 32 year old schizophrenic lady complains that she hears voices saying “she is evil”. What is the SINGLE most likely type of hallucinations involved?</p> <p>A. First-person auditory hallucinations B. Second-person auditory hallucinations C. Third-person auditory hallucinations D. Echo de la pensee E. Gedankenlautwerden</p> <p>Third-person auditory hallucinations</p> <p>Auditory hallucinations characteristic of schizophrenia where voices are heard referring to the patient as ‘he’ or ‘she’, rather than ‘you’. For example "She is an evil person".</p> <p>Sometimes the voices are of a running commentary. Example, the patient hears one or more voices providing a narrative of their current actions, ‘he’s getting up...now he’s going towards the window’.</p>
91.	<p>A 18 year old male washes his hands 6 times every time he uses the toilet. On his way out of the toilet, he has to switch off the light, turn it back on and turn it off once more. What is the SINGLE most appropriate management?</p> <p>A. Psychodynamic therapy B. Electroconvulsive therapy (ECT) C. Antipsychotics D. Cognitive behavioural therapy (CBT) E. Psychotherapy</p> <p>Obsessive–compulsive disorder (OCD)</p> <p>A common, chronic condition, often associated with marked anxiety and depression, characterized by ‘obsessions’.</p> <p>It is characterized by recurrent obsessions or compulsions that are recognized by the individual as unreasonable. Obsessions are anxiety-provoking, intrusive thoughts, commonly concerning contamination, doubt, guilt, aggression, and sex. Compulsions are peculiar</p>



	<p>behaviors that reduce anxiety, commonly hand-washing, organizing, checking, counting, and praying.</p> <p>Management CBT is recommended by NICE, but essentially takes a behavioural approach, including exposure and response prevention (ERP).</p> <p>SSRIs (licensed): escitalopram, fluoxetine, sertraline or paroxetine should be considered first-line (no clear superiority of any one agent). Other (unlicensed) agents include citalopram</p> <p>For PLAB, electroconvulsive therapy (ECT) be the answer for treatment of OCD → If patient is suicidal or severely incapacitated</p>
92.	<p>A 68 year old man comes in to A&E confused and with a coarse tremor. As the emergency doctor is taking a history, he becomes unconscious. Which of the following medications could account for his symptoms?</p> <p>A. Haloperidol B. Diazepam C. Fluoxetine D. Imipramine E. Lithium</p> <p>Lithium toxicity</p> <p>Lithium is mood stabilising drug used in bipolar disorder.</p> <p>Features of toxicity coarse tremor (a fine tremor is seen in therapeutic levels) hyperreflexia acute confusion seizure coma</p> <p>Management Is beyond what will be asked in PLAB part 1.</p>
93.	<p>A 42 year old man with a history of bipolar disorder is noted to have high serum levels of lithium and profound hypokalaemia on routine examination. He was recently diagnosed with essential hypertension and his GP had started him on an antihypertensive medication. What is the SINGLE most likely cause of the recent findings?</p> <p>A. Atenolol B. Captopril C. Ramipril D. Spironolactone E. Bendroflumethiazide</p>



	<p>They key here is to understand what medication can cause both hypokalaemia and causes lithium levels to rise.</p> <p>Thiazides (e.g. bendroflumethiazide) can cause hypokalaemia. Thiazide and related diuretics can cause a rapid rise in serum lithium levels leading to toxicity. NICE recommends avoid concurrent use unless lithium levels can be closely monitored and the lithium dose adjusted as necessary. Advise patients to report lithium adverse effects (tremor, dysarthria, ataxia, confusion).</p> <p>Atenolol → Is a beta blocker. There has been one study which suggests that atenolol might decrease the clearance of lithium. However, NICE guidelines state that no particular precautions are warranted. Thus being less likely the cause of lithium toxicity.</p> <p>Ranitidine → is an H2 histamine receptor antagonist that works by blocking histamine. It is used in gastro oesophageal reflux disease and is not a antihypertensive</p> <p>Captopril and Ramipril → are an ACEi. They would cause hyperkalaemia. Thus is no longer an option here.</p> <p>Spironolactone → is a potassium sparing diuretics and causes hyperkalaemia. Thus is no longer an option here.</p>
94.	<p>A 22 year old woman was brought to the A&E by her friends. She presents with tremors. On examination, she was found to have a temperature of 37.4°C and her pupils dilated. She says when she closes her eyes, she can see colours. What is the SINGLE most likely drug that has taken?</p> <p>A. Amphetamines B. Lysergic acid diethylamide (LSD) C. Cocaine D. Heroine E. Ecstasy</p> <p>The first noticeable effects of LSD are primarily on the five senses: sight, hearing, touch, smell and taste. Colors seem more vivid and luminous; hearing becomes more acute; the sense of touch is intensified.</p> <p>LSD can cause visual hallucinations, agitation, excitement, tachycardia and dilated pupils. Hypertension and pyrexia may occur. Acute harmful effects are behavioural toxicity (i.e. harm related to acting on beliefs such as having the ability to fly). Treatment is supportive.</p>



95. A 45 year old woman has been extensively investigated for a lump she believes to be cancer. All investigations done show that the lump is unlikely to be cancer however she is not convinced and does not think the doctors are taking her seriously. She has demanded for another referral. What is the SINGLE most appropriate term that describes her condition?

- A. Munchausen's syndrome
- B. Munchausen's by proxy
- C. Hypochondriasis**
- D. Malingering
- E. Conversion disorders

Her obsession and persistent belief that there is an underlying serious disease is evidence of hypochondriasis. As there is actually a lump and she is not falsifying the symptoms, it is not Munchausen's syndrome or malingering.

Hypochondriasis → is the persistent belief in the presence of an underlying serious DISEASE, e.g. cancer or HIV. The patient again refuses to accept reassurance or negative test results.

Munchausen's syndrome → also known as factitious disorder. Patients intentionally falsify their symptoms and past history and fabricate signs of physical or mental disorder with the primary aim of obtaining medical attention and treatment. The diagnostic features are the intentional and conscious production of signs, falsification, or exaggeration of the history and the lack of gain beyond medical attention and treatment.

Munchausen's syndrome by proxy → manifest by a person feigning or inducing illness in a child (or others) in order to obtain medical attention. It is a form of child abuse in that it subjects the child to emotional abuse, unnecessary medical procedures, hospitalization or other treatments that are harmful to the child.

Malingering → Deliberately falsifying the symptoms of illness for a secondary gain (e.g. for compensation, to avoid military service, or to obtain an opiate prescription).

Conversion (dissociative) disorders → typically involves loss or disturbance of normal motor or sensory function which initially appears to have a neurological or other physical cause but is later attributed to a psychological cause. The patient does not consciously feign the symptoms or seek material gain. Patients may be indifferent to their apparent disorder.

96. A 34 year old man suffering from schizophrenia laughs inappropriately while talking about his father's death with his siblings. What is the SINGLE most appropriate term that describes this?

- A. Flight of ideas
- B. Flat affect
- C. Emotional lability
- D. Incongruent affect**
- E. Clang association



	<p>Incongruent affect</p> <p>The term “incongruent” means out of place. Incongruent affect is sometimes seen in schizophrenia where their behaviour is out of place. Example, talking about problems in their family while laughing or laughing when your pet dies.</p>
97.	<p>A 28 year old schizophrenic man refuses to let his father into the house because he has the delusion that his father has been replaced by an identical looking impostor. He easily recognised other family members but would misidentify his father only. What is the SINGLE most likely condition he is suffering from?</p> <p>A. Capgras syndrome B. Ganser syndrome C. Todd's syndrome D. Frégoli delusion E. Cotard syndrome</p>
98.	<p>A 33 year old man who lives with his mother, always thinks when the traffic lights turn red, his mother is calling him to come home. This is followed by his actions to drive back home. What is the SINGLE most likely diagnosis?</p> <p>A. Obsessive compulsive disorder (OCD) B. Generalised Anxiety Disorder (GAD) C. Schizophrenia D. Bipolar disorder E. Cyclothymia</p> <p>He thinks that the changing of traffic lights are giving him a message. These are called delusional perceptions and are a feature of schizophrenia.</p> <p>Schizophrenia</p> <p>Features</p> <p>Auditory hallucinations:</p> <ul style="list-style-type: none">• third-person auditory hallucinations → voices are heard referring to the patient as ‘he’ or ‘she’, rather than ‘you’• thought echo → an auditory hallucination in which the content is the individual’s current thoughts• voices commenting on the patient's behaviour <p>Thought disorder:</p> <ul style="list-style-type: none">• thought insertion → The delusional belief that thoughts are being placed in the patient’s head from outside• thought withdrawal → The delusional belief that thoughts have been 'taken out' of his/her mind



	<ul style="list-style-type: none">• thought broadcasting → The delusional belief that one's thoughts are accessible directly to others• thought blocking → a sudden break in the chain of thought. <p>Passivity phenomena:</p> <ul style="list-style-type: none">• bodily sensations being controlled by external influence <p>Delusional perceptions</p> <ul style="list-style-type: none">• a two stage process where first a normal object is perceived then secondly there is a sudden intense delusional insight into the object's meaning for the patient e.g. 'The traffic light is green therefore I am the King'.
99.	<p>A 33 year old schizophrenic man hears people only when he is about to fall asleep. What is the SINGLE most likely phenomenon?</p> <p>A. Hypnopompic hallucinations B. Hypnagogic hallucinations C. Hippocampal hallucinations D. Delirious hallucinations E. Auditory hallucinations</p> <p>Hypnagogic hallucination is a transient false perception experienced while on the verge of falling asleep (e.g. hearing a voice calling one's name which then startles you back to wakefulness to find no-one there). The same phenomenon experienced while waking up is called hypnopompic hallucination. Frequently experienced by healthy people and so not a symptom of mental illness.</p>
100.	<p>A 30 year old man complains of episodes of hearing music and threatening voices within a couple of hours of heavy drinking with his friends at a friends birthday party. What is the SINGLE most likely diagnosis?</p> <p>A. Delirium tremens B. Wernicke's encephalopathy C. Korsakoff's psychosis D. Alcohol hallucinosis E. Temporal lobe dysfunction</p> <p>Alcohol hallucinosis can occur during acute intoxication or withdrawal. It usually appears 12-24 hours after alcohol has stopped. It involves auditory and visual hallucinations, most commonly accusatory or threatening voices.</p> <p>The answer is unlikely to be delirium tremens because of the time frame in which he was drinking alcohol. Delirium tremens usually happens days after alcohol consumption has been stopped and he would need to be a chronic alcoholic.</p> <p>Again, since there are no signs and symptoms of chronic alcohol abuse, it is unlikely to be</p>



	<p>Wernicke's encephalopathy or Korsakoff's psychosis.</p> <p>Alcohol withdrawal symptoms:</p> <ul style="list-style-type: none">• Symptoms typically present about eight hours after a significant fall in blood alcohol levels. They peak on day 2 and, by day 4 or 5, the symptoms have usually improved significantly.• Minor withdrawal symptoms (can appear 6-12 hours after alcohol has stopped)• Alcoholic hallucinosis (can appear 12-24 hours after alcohol has stopped). This includes visual, auditory or tactile hallucinations.• Withdrawal seizures (can appear 24-48 hours after alcohol has stopped). These are generalised tonic-clonic seizures <p>Delirium tremens</p> <ul style="list-style-type: none">• Delirium tremens usually begins 24-72 hours after alcohol consumption has been reduced or stopped.• Seen in chronic alcoholics• The symptoms/signs differ from usual withdrawal symptoms in that there are signs of altered mental status. These can include hallucinations (auditory, visual, or olfactory), confusion, delusions, severe agitation. Seizures can also occur.
101.	<p>A 25 year old woman has had several sudden onset episodes of palpitations, sweating, and fear. She notices her hands shake when they occur. These episodes occur almost everyday and sometimes can wake her from her sleep. She has no previous psychiatric disorder and is not on any medications. What is the SINGLE most likely diagnosis?</p> <p>A. Pheochromocytoma</p> <p>B. Panic disorder</p> <p>C. Generalized anxiety disorder</p> <p>D. Agoraphobia</p> <p>E. Acute stress disorder</p>
102.	<p>A 52 year old woman has been depressed ever since her husband died half a year ago. She was started on amitriptyline by her GP 3 months ago to help battle her depression. She now feels much better and sleeps well. She still think about her husband occasionally and the thoughts bring her mood down but she has drastic improvements as compared to a few months ago. She wants to know if she can stop medication. What is the SINGLE best advice to give her?</p> <p>A. Stop amitriptyline and start cognitive behavioural therapy (CBT)</p> <p>B. Stop amitriptyline and start bereavement counselling</p> <p>C. Stop amitriptyline and start psychoanalysis</p> <p>D. Stop amitriptyline and review in 4 weeks</p> <p>E. Continue amitriptyline for another 3 more months</p>



	<p>Continuing therapy for at least 6 months is advised as to reduce risk of relapse even when patients are feeling “better”. Patients should be reassured that antidepressants are not addictive.</p> <p>Depression is an important feature of bereavement. We note a good response with this lady as she feels better and sleeps well. But antidepressive therapy should still be continued for another 3 more months (6 months in total) to reduce risk of relapse.</p>
103.	<p>A 37 year old man was recently sent to jail for breaking all the windows of a shop with his bat. When the manager tried to stop him, he hit the manager on the head. He has a history of many convictions and has been imprisoned many times. He finds it difficult to keep close relationships. He has 2 boys with his ex--wife but does not contact them. What is the most SINGLE most likely diagnosis?</p> <p>A. Borderline personality disorder B. Schizophrenia C. Avoidant personality disorder D. Histrionic personality disorder E. Antisocial behavior disorder</p> <p>Antisocial Personality disorder Characterized by continuous antisocial or criminal acts, inability to conform to social rules, impulsivity, disregard for the rights of others, aggressiveness, and lack of remorse. They will typically be manipulative, deceitful and reckless. Like other types of personality disorder, antisocial personality disorder is on a spectrum, which means it can range in severity from occasional bad behaviour to repeatedly breaking the law and committing serious crimes. Psychopaths are considered to have a severe form of antisocial personality disorder</p>
104.	<p>A 35 year old male is bitterly annoyed with everyone around him. He complains that they are putting ideas into his head. What is the SINGLE most likely phenomenon?</p> <p>A. Thought block B. Thought insertion C. Thought broadcasting D. Thought withdrawal E. Thought echo</p> <p>Thought insertion is the delusional belief that thoughts are being placed in the patient’s head from outside. It is a first-rank symptom of schizophrenia. Schizophrenia</p> <p>Features</p> <p>Auditory hallucinations:</p> <ul style="list-style-type: none">• third-person auditory hallucinations → voices are heard referring to the patient as ‘he’ or ‘she’, rather than ‘you’



	<ul style="list-style-type: none">• thought echo → an auditory hallucination in which the content is the individual's current thoughts• voices commenting on the patient's behaviour <p>Thought disorder:</p> <ul style="list-style-type: none">• thought insertion → The delusional belief that thoughts are being placed in the patient's head from outside• thought withdrawal → The delusional belief that thoughts have been 'taken out' of his/her mind• thought broadcasting → The delusional belief that one's thoughts are accessible directly to others• thought blocking → a sudden break in the chain of thought. <p>Passivity phenomena:</p> <ul style="list-style-type: none">• bodily sensations being controlled by external influence <p>Delusional perceptions</p> <ul style="list-style-type: none">• a two stage process where first a normal object is perceived then secondly there is a sudden intense delusional insight into the object's meaning for the patient e.g. 'The traffic light is green therefore I am the King'.
105.	<p>A 64 year old woman has been brought by her son for psychiatric evaluation. She says that she has stopped living with her husband because she is convinced that it is someone else posing to be him. What is the SINGLE most likely condition she is suffering from?</p> <p>A. Delusion of reference B. Delusion of control C. Cotard syndrome D. Delusion of persecution E. Capgras syndrome</p> <p>Capgras syndrome → A type of delusional misidentification in which the patient believes that a person known to them has been replaced by a 'double' who is to all external appearances identical, but is not the 'real person'.</p> <p>Delusion of reference → is the false belief that insignificant remarks, events, or objects in one's environment have personal meaning or significance. Example, someone constantly gives him or her a special messages through the newspaper.</p> <p>Cotard syndrome → is a presentation of psychotic depressive illness characterised by a combination of severely depressed mood with nihilistic delusions. The patient may state that he is already dead and should be buried. He may state that his insides have stopped working and are rotting away, or that he has stopped existing altogether.</p> <p>Delusion of guilt → involves feeling guilty or remorseful for no valid reason. An example would be someone that believes they were responsible for a war in another country or</p>



	<p>hurricane damage in another state. The object of delusion believes that they deserve to be punished for their sins.</p> <p>Persecutory delusion → is a delusional belief that one's life is being interfered with in a harmful way. It refers to false beliefs or perceptions in which a person believes that they are being treated with malicious intent, hostility, or harassment despite significant evidence to suggest otherwise. This may occur in the context of being tormented, followed, or spied on.</p>
106.	<p>A 21 year old woman was brought to the Emergency Department by her boyfriend. She has many self inflicted superficial lacerations on her forearm. She is distressed and constantly says her boyfriend is going to end the relationship. She denies trying to end her life. What is the SINGLE most likely diagnosis?</p> <p>A. Acute psychosis B. Antisocial personality disorder C. Psychotic depression D. Borderline personality disorder E. Schizophrenia</p> <p>Borderline Personality Disorder</p> <p>Usually characterized by mood swings, marked impulsivity, unstable relationships, and inappropriate anger. They can be very dramatic. They are usually attention seekers and may have multiple self-inflicted scars. They may threaten to commit suicide but do not actually attempt to do so.</p>
107.	<p>A 33 year old women in the psychiatric ward diagnosed with schizophrenia, complains that she is unable to think straight because the nurse is stealing her thoughts. What is the SINGLE most likely phenomenon?</p> <p>A. Thought block B. Thought insertion C. Thought broadcasting D. Thought withdrawal E. Thought block</p> <p>This is thought withdrawal. Which is the delusional belief that thoughts have been 'taken out' of his/her mind. It is commonly associated with thought block. But the difference is that in thought block, there is a sudden break of chain of thought and no one is stealing the ideas.</p> <p>Schizophrenia</p> <p>Features</p> <p>Auditory hallucinations:</p> <ul style="list-style-type: none">third-person auditory hallucinations → voices are heard referring to the patient as 'he' or 'she', rather than 'you'



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108.	<p>A 30 year old schizophrenic female attacks her mother believing that aliens have replaced her with an exact double. What is the SINGLE most likely condition she is suffering from?</p> <p>A. Capgras syndrome B. Ganser syndrome C. Todd's syndrome D. Frégoli delusio E. Cotard syndrome</p> <p>Capgras syndrome → A type of delusional misidentification in which the patient believes that a person known to them has been replaced by a 'double' who is to all external appearances identical, but is not the 'real person'.</p> <p>Ganser syndrome → is a type of factitious disorder, a mental illness in which a person deliberately and consciously acts as if he or she has a physical or mental illness. They mimic behavior that is typical of a mental illness, such as schizophrenia. It is also sometimes called prison psychosis, because the syndrome occurs most frequently in prison inmates, where it may represent an attempt to gain leniency from prison or court officials. They produce 'approximate answers'. They may give repeated wrong answers to questions which are nonetheless 'in the right ballpark'. Example, 'what is the capital of Scotland?' Answer 'Paris'. These symptoms may occasionally be associated with organic brain illness but it is much more commonly seen as a form of malingering in those attempting to feign mental illness usually prisoners awaiting trial.</p> <p>Todd's syndrome → Also known as "Alice in Wonderland Syndrome". It involves perceptual distortions of the size or shape of objects and altered body images. Patients may feel as</p>



	<p>though their body is expanding or getting smaller.</p> <p>Frégoli delusion (Delusion of doubles) → is when a person holds a delusional belief that different people are in fact a single person who changes appearance or is in disguise.</p> <p>Cotard syndrome → is a presentation of psychotic depressive illness characterised by a combination of severely depressed mood with nihilistic delusions. The patient may state that he is already dead and should be buried. He may state that his insides have stopped working and are rotting away, or that he has stopped existing altogether.</p>
109.	<p>A 17 year old girl who was 'fine' until her boyfriend ended their relationship. Out of anger, she took 10 tablets of paracetamol after drinking alcohol. She is brought into A&E by her mother. What is the SINGLE most appropriate next course of action?</p> <p>A. Refer to psychiatry B. Liver transplant C. Refer to GP D. Discharge home. No referral needed. E. Start N-acetylcysteine</p> <p>Referral to psychiatric team would be the most accurate option here. Acute alcohol consumption is an inhibitor of P-450 enzyme system. Since she has consumed alcohol acutely, the risk of fatal effects of paracetamol poisoning would be reduced. Not to mention that 10 tablets of paracetamol in a 17 year old is not life threatening. She does however need a psychiatric evaluation before she leaves the hospital as she was clearly trying to harm herself.</p> <p>Paracetamol (acetaminophen) poisoning</p> <p>Initial features → Nausea, vomiting, pallor After 24 hours → Hepatic enzymes rise After 48 hours → Jaundice, an enlarged, tender liver</p> <p>Hypoglycaemia, hypotension, encephalopathy, coagulopathy, coma may also occur.</p> <p>When to discharge home?</p> <ul style="list-style-type: none">• If ingestion of paracetamol is < 150mg/kg in a child/adult with no hepatic risk factors <p>When to admit?</p> <ul style="list-style-type: none">• Admit those presenting within 8h of ingesting >150mg/kg (or an unknown amount) <i>(For the exam, it can be quite time consuming to multiply 150mg with the weight of the patient. So we would advise you to use the number 24 as a benchmark whereby if the patient consumes more than 24 tablets (12 g) of paracetamol, then you admit him/her)</i> <p>When to do a serum paracetamol concentration?</p> <ul style="list-style-type: none">• At ≥4h post ingestion if consumed >150mg/kg (or an unknown amount)



	<p>When to give activated charcoal?</p> <ul style="list-style-type: none">• If presenting < 1h, and >150mg/kg of tablets ingested <p>When to give N-acetylcysteine?</p> <ul style="list-style-type: none">• If there is a staggered overdose (Note: a staggered overdose is if all the tablets were not taken within 1 hour); or• If there is doubt over the time of paracetamol ingestion, regardless of the plasma paracetamol concentration; or• If plasma paracetamol concentration (taken 4 hours post ingestion) is above the appropriate line• If patients presents late (>8h) and ingested dose is >150mg/kg, (or dose is unknown)
110.	<p>A 22 year old man is distressed that he hears the voice of his deceased uncle telling him that he is being spied on. He feels low in mood and anxious. He has not left the house for 2 weeks and has recently starting to drink increasing quantities of alcohol due to his anxiety. His speeches are interrupted with silence for a few seconds followed by topics unrelated to what was being discussed. He feels he is no longer in control of his own body and thoughts. What is the SINGLE most suitable medication to treat his symptom?</p> <p>A. Diazepam B. Disulfiram C. Fluoxetine D. Lithium E. Olanzapine</p> <p>THIS INDIVIDUAL IS SUFFERING FROM SCHIZOPHRENIA. THE SPEECHES THAT ARE INTERRUPTED WITH SILENCE FOLLOWED BY AN UNRELATED TOPIC IS CALLED THOUGHT BLOCKING. THE FEATURE THAT HE IS NO LONGER IN CONTROL OF HIS OWN BODY AND THOUGHTS IS CALLED PASSIVITY PHENOMENON. BOTH OF THESE ARE FEATURES OF SCHIZOPHRENIA.</p> <p>FIRST-LINE TREATMENT IN NEWLY DIAGNOSED SCHIZOPHRENIA INVOLVES THE USE OF THE NEWER ATYPICAL ANTIPSYCHOTICS LIKE OLANZAPINE OR RISPERIDONE.</p> <p>BENZODIAZEPINES ARE ONLY USED IF RAPID TRANQUILLISATION IS NEEDED. THIS MAY BE THE CHOICE IF THE SCENARIO INVOLVED A VIOLENT, AGGRESSIVE PATIENT.</p>
111.	<p>A 37 year old woman who delivered 3 days ago is now concerned about her mood. She has trouble sleeping and feels generally anxious and tearful. She is unable to explain why she is crying all the time. She has no history of mental health disorders in the past. What is the SINGLE most appropriate management?</p> <p>A. Citalopram B. Cognitive behavioral therapy (CBT) C. Fluoxetine D. Reassurance E. Admit mother to mother and baby unit</p>



The diagnosis here is baby-blues which is seen in around 3/4 of women after delivering. Whilst poor sleep could potentially be a sign of depression, poor sleep is expected with a new baby.

Baby blues

Up to 75% of new mothers will experience a short-lived period of tearfulness and emotional lability starting two or three days after birth and lasting 1–2 days. This is common enough to be easily recognizable by midwifery staff and requires only reassurance and observation towards resolution.

Comparison of Postpartum Blues , Postnatal Depression, Postpartum Psychosis

	Postpartum Blues	Postnatal Depression	Postpartum Psychosis
Onset	Starts at two or three days after birth and lasts 1–2 days	Peaks at 3 to 4 weeks postpartum	Peaks at 2 weeks postpartum
Mother cares for baby	Yes	Yes	Thoughts of harming baby
Symptoms	Mostly crying	Symptoms of depression: Feels that she is not capable of looking after her child Feels as if she will not be a good mother Tearful, Anxiety Worries about baby's health	Psychotic symptoms E.g. hears voices saying baby is evil Insomnia Disorientation Thoughts of suicide
Treatment	Reassurance and explanation	Antidepressants or CBT	In PLAB, answer would be ECT



112. A 36 year old woman contacts the police to notify them that she was responsible for a recent disastrous flood which had resulted in loss of lives. What is the SINGLE most likely kind of delusions she is suffering from?

- A. Persecutory delusion
- B. Frégoli delusion
- C. Delusion of guilt**
- D. Nihilistic delusions
- E. Delusion of reference

Delusion of guilt → involves feeling guilty or remorseful for no valid reason. An example would be someone that believes they were responsible for a war in another country or hurricane damage in another state. The object of delusion believes that they deserve to be punished for their sins.

Persecutory delusion → is a delusional belief that one's life is being interfered with in a harmful way. It refers to false beliefs or perceptions in which a person believes that they are being treated with malicious intent, hostility, or harassment despite significant evidence to suggest otherwise. This may occur in the context of being tormented, followed, or spied on.

Frégoli delusion (Delusion of doubles) → is when a person holds a delusional belief that different people are in fact a single person who changes appearance or is in disguise.

Nihilistic delusions → is the delusional belief that the patient has died or no longer exists or that the world has ended or is no longer real. Nothing matters any longer and continued effort is pointless. It is a feature of psychotic depressive illness. Patient may believe that he/she is dead and may ask people to bury them.

Delusion of reference → is the false belief that insignificant remarks, events, or objects in one's environment have personal meaning or significance. Example, someone constantly gives him or her a special messages through the newspaper.

113. A 52 year old woman speaks rapidly without any pause and ignores interruptions. She barely even pauses to take enough breaths. What is the SINGLE best term to describe this kind of speech?

- A. Flight of ideas
- B. Broca's aphasia
- C. Wernicke's aphasia
- D. Pressure of speech**
- E. Verbal dysphasia

Pressure of speech

Pressure of speech is a tendency to speak rapidly and frenziedly, as if motivated by an urgency not apparent to the listener. The speech is rapid, difficult to interrupt, and, with increasing severity of illness, the connection between sequential ideas may become



	increasingly hard to follow. Pressure of speech is a hallmark of mania and is often seen during manic periods in patients with bipolar disorder.
114.	<p>A 36 year old woman was recently admitted to a psychiatric ward. She believes that the staff and other patients know exactly what she is thinking all the time. What is the SINGLE most likely phenomenon</p> <p>A. Thought insertion B. Thought withdrawal C. Thought block D. Thought broadcasting E. Hallucination</p> <p>Thought broadcasting is the delusional belief that one's thoughts are accessible directly to others. It is found in schizophrenia.</p> <p>Schizophrenia</p> <p>Features</p> <p>Auditory hallucinations:</p> <ul style="list-style-type: none">• third-person auditory hallucinations → voices are heard referring to the patient as 'he' or 'she', rather than 'you'• thought echo → an auditory hallucination in which the content is the individual's current thoughts• voices commenting on the patient's behaviour <p>Thought disorder:</p> <ul style="list-style-type: none">• thought insertion → The delusional belief that thoughts are being placed in the patient's head from outside• thought withdrawal → The delusional belief that thoughts have been 'taken out' of his/her mind• thought broadcasting → The delusional belief that one's thoughts are accessible directly to others• thought blocking → a sudden break in the chain of thought. <p>Passivity phenomena:</p> <ul style="list-style-type: none">• bodily sensations being controlled by external influence <p>Delusional perceptions</p> <ul style="list-style-type: none">• a two stage process where first a normal object is perceived then secondly there is a sudden intense delusional insight into the object's meaning for the patient e.g. 'The traffic light is green therefore I am the King'.



- 115.** A 23 year old single male was brought to emergency department by his father exhausted and frightened. His father tells you that his son, who was previously healthy, had, for no apparent reason, a sudden attack of fear, dizziness, sweating, palpitations and the feeling that his heart is going to stop beating. The symptoms started to decrease gradually after about 10 minutes. Which is the SINGLE most likely?

- A. Panic attack**
- B. Delirious state
- C. Alcohol withdrawal
- D. Social phobia
- E. Pheochromocytoma

Panic attacks

Period of intense fear characterized by a constellation of symptoms that develop rapidly, reach a peak of intensity in about 10min, and generally do not last longer than 20–30min (rarely over 1 hour). Attacks may be either spontaneous ('out of the blue') or situational (usually where attacks have occurred previously).

Symptoms/signs

- Tremor
- Tachycardia
- Tachypnoea,
- Sweating
- Concerns of death from cardiac or respiratory problems

They may complain of dizziness, circumoral paraesthesia, carpopedal spasm, and occasionally sharp or stabbing chest pain. Initial examination would reveal tachypnoea with equal air entry over both lung fields, and no wheeze or evidence of airway obstruction. It is important to consider secondary causes (such as PE or DKA). Therefore, perform the following investigations:

- SpO₂
- ECG
- ABG if SpO₂ ↓ , or if symptoms do not completely settle in a few minutes
- BMG

If symptoms do not completely settle in a few minutes, obtain:

- CXR
- U&E, blood glucose, FBC

Treatment

Do not sedate a patient who is hyperventilating. Once serious diagnoses have been excluded, use this information to help reassure the patient with primary hyperventilation. Often this is all that is required, but it may be helpful to try simple breathing exercises (e.g. breathe in through nose)



116. A 33 year old female presents to her GP because of low moods. She has difficulty sleeping and feels tired at work. She refuses to go out with her friends and rather spends time resting on her bed. She is eating less and has lost 8 kg in the last 10 weeks. A year ago, she was productive, full of energy, optimistic, needed very little sleep and always wanted to go out. Her BMI is 27. What is the SINGLE most likely diagnosis?

- A. Hypomania
- B. Bipolar disorder**
- C. Borderline personality disorder
- D. Depression
- E. Mania

This stem portrays a good history of depression with a background of mania in the past. The symptoms of mania in this stem is very subtle and somewhat within normal limits but the real give away is when there is reduced need for sleep.

This would be a classic scenario that PLAB would give when they would like you to pick Bipolar disorder.

Bipolar affective disorder (commonly known as manic depression)

Classically, periods of prolonged and profound **depression** alternate with periods of excessively elevated and irritable mood, known as **mania**.

Most people who battle with the effects of the disorder would rather live a normal life, free from the unpredictability of mood swings, which most of us take for granted.

The symptoms of mania characteristically include:

- Decreased need for sleep
- Pressured speech
- Increased libido
- Reckless behaviour without regard for consequences
- Grandiosity
- More talkative than usual

These symptoms of mania would alternate with depression

Treatment

Mood stabilizers (Lithium)- Despite problems with tolerability, lithium still remains the gold standard in the treatment of bipolar affective disorder.



117. A 20 year old boy is brought by his parents to the emergency department. He is agitated and euphoric. The parents suspect that he has taken drugs. Examination reveals a perforated nasal septum. What is the SINGLE most likely drug that was taken?

- A. Heroin
- B. Cocaine**
- C. Ecstasy/MDMA/amphetamine
- D. Alcohol
- E. Opioids

This is a high yield question in PLAB. The perforated nasal septum is a huge clue that the route of intake is nasally inhaled. In majority of cases, the answer when you see that term is cocaine. This along with the signs and symptoms of euphoria and agitation points towards cocaine.

Cocaine

Cocaine is an alkaloid derived from the coca plant. It is widely used as a recreational stimulant.

The main route of intake is by inhalation as it undergoes rapid 'first pass' liver metabolism. The user forms the powder into 'lines' and inhales via rolled paper tube (classically, a high denomination bank note).

There is increased energy, increased confidence, euphoria, and diminished need for sleep, but with rapid fall-off in effects due to rapid metabolism, leading to repeated use.

The use of cocaine is associated with a wide variety of adverse effects:

Cardiovascular effects

- arrhythmias
- both tachycardia and bradycardia may occur
- hypertension

Neurological effects

- seizures
- mydriasis
- hypertonia
- hyperreflexia

Psychiatric effects

- agitation
- psychosis

Others

- effects include necrosis of nasal septum



118. A 38 year old women believes that a famous politician has been sending her flowers every day and is in love with her. She says that he drops hints that he loves her when he speaks publicly on television. The famous politician has had no contact with this lady. What is the SINGLE most likely diagnosis?

- A. Pyromania
- B. Erotomania**
- C. Rejected stalker
- D. Trichotillomania
- E. Grandiosity

Erotomaniac stalkers have the delusional belief that another person, usually of higher social status, is secretly in love with them. The sufferer may also believe that the subject of their delusion secretly communicates their love through seemingly innocuous acts, or if they are a public figure through clues in the media. The object of the delusion usually has little or no contact with the sufferer, who often believes the object initiated the fictional relationship. Erotomaniac delusions are typically found as the primary symptom of a delusional disorder, and in schizophrenia or mania.

Definitions of other options given in this question

Pyromania → an impulse control disorder in which individuals repeatedly fail to resist impulses to deliberately start fires, in order to relieve tension or for instant gratification.

Rejected stalker → Pursues a victim in order to reverse, correct, or avenge rejection (e.g. divorce, separation, termination of relationship).

Trichotillomania → an impulse disorder characterized by the compulsive urge to pull out one's hair, leading to noticeable hair loss and balding.

Grandiosity → An exaggerated sense of one's own importance or abilities. Seen in manic illnesses.

119. A 27 year old man presents with symptoms characterized by alternating mood swings associated with flight of ideas, and overactivity. Three months ago he had low moods with lack of energy. What is the SINGLE most likely diagnosis?

- A. Bipolar affective disorder**
- B. Dysthymia
- C. Mania
- D. Hypomania
- E. Cyclothymia

It is clear that this patient is having periods of depression with other periods of mania.

Flight of ideas is thought that jumps from topic to topic. It is the subjective experience of one's thoughts being more rapid than normal. Meaningful connections between thoughts are



	<p>maintained. It occurs especially in the manic phase of bipolar disorder.</p> <p>Bipolar affective disorder (commonly known as manic depression) Classically, periods of prolonged and profound depression alternate with periods of excessively elevated and irritable mood, known as mania.</p> <p>Most people who battle with the effects of the disorder would rather live a normal life, free from the unpredictability of mood swings, which most of us take for granted.</p> <p>The symptoms of mania characteristically include:</p> <ul style="list-style-type: none">• Decreased need for sleep• Pressured speech• Increased libido• Reckless behaviour without regard for consequences• Grandiosity• More talkative than usual <p>These symptoms of mania would alternate with depression</p> <p>Treatment Mood stabilizers (Lithium)- Despite problems with tolerability, lithium still remains the gold standard in the treatment of bipolar affective disorder.</p>
120.	<p>A 55 year old man is brought to the GP surgery by his wife for a review of a growth on his forehead. His wife wants the growth removed but he refuses and says that the growth helps him think clearly. What is the SINGLE most appropriate next course of action?</p> <p>A. Assess his mental capacity to refuse treatment B. Remove the lesion C. Refer to A&E D. Perform a Mini Mental Status Examination (MMSE) E. Refuse surgery and review in 2 weeks</p> <p>Assessment of his mental capacity to refuse treatment would be the most appropriate next course of action. If his state of mind is fine, we can follow his instructions and leave the lesion there. But obviously, his mental state is not fine as he believes that this growth helps him think clearly.</p> <p>Mini Mental Status Examination (MMSE) is to assess patients with dementia. All patients with cognitive impairment should be assessed with a Mini Mental Status Examination (MMSE) to identify the areas of cognitive impairment.</p>



121.	<p>A 56 year old chronic alcoholic man wants to attend his daughter's wedding in 2 weeks and does not want to be drinking during the wedding. He says he is determined to quit drinking alcohol but wants extra help. What is the SINGLE most appropriate medication?</p> <p>A. Acamprosate B. Refer to clinical psychologist C. Vitamin B12 D. Desipramine E. Refer to community mental health support group</p> <p>Acamprosate, in combination with counselling, may be helpful for maintaining abstinence in alcohol-dependent patients. It is useful for patients who are concerned that strong cravings will result in relapse.</p> <p>Clinical psychologist and mental health support groups are wrong places to refer a chronic alcoholic.</p> <p>Alcohol, a drinking problem The general idea for is:</p> <ul style="list-style-type: none">• Disulfiram<ul style="list-style-type: none">• Acts as a deterrent → Some five to 10 minutes after alcohol intake, the patient may experience the effects of a severe hangover for a period of 30 minutes up to several hours.• Acamprosate<ul style="list-style-type: none">• Reduces cravings
122.	<p>A 35 year old man is seen by his psychiatrist for severe depression. He says that the world has ended and is no longer real. He thinks that he no longer exist in this world. He barely has eye contact with the psychiatrist. What is the SINGLE most appropriate diagnosis?</p> <p>A. Somatization disorder B. Hypochondriasis C. Conversion disorder D. Nihilistic delusions E. Capgras syndrome</p> <p>Nihilistic delusions is the delusional belief that the patient has died or no longer exists or that the world has ended or is no longer real. Nothing matters any longer and continued effort is pointless. It is a feature of psychotic depressive illness. Patient may believe that he/she is dead and may ask people to bury them.</p> <p>Somatization disorder → The experience of bodily symptoms with no physical cause for them, with presumed psychological causation.. The patient refuses to accept reassurance or negative test results</p> <p>Hypochondriasis → is the persistent belief in the presence of an underlying serious DISEASE, e.g. cancer or HIV. The patient again refuses to accept reassurance or negative test results.</p>



Conversion (dissociative) disorders → typically involves loss or disturbance of normal motor or sensory function which initially appears to have a neurological or other physical cause but is later attributed to a psychological cause. The patient does not consciously feign the symptoms or seek material gain. Patients may be indifferent to their apparent disorder.

Capgras syndrome → A type of delusional misidentification in which the patient believes that a person known to them has been replaced by a 'double' who is to all external appearances identical, but is not the 'real person'.

123. A 32 year old lady has recently become more active over the past year. She sleeps less and recently bought a house and 2 new cars. She notices that her sex drive has increased. She often starts a task but is not able to finish it as she has difficulty in focusing on one task alone. What is the SINGLE most likely diagnosis?

- A. Bipolar disorder
- B. Mania
- C. Hypomania**
- D. Schizophrenia
- E. Attention deficit hyperactivity disorder (ADHD)

The symptoms here are representative of hypomania which can be thought of as a milder form of mania. With hypomania, there is higher than normal energy levels but they do not generally lead to hospitalization whereas manic episodes usually last for a week or more and may result in hospitalization.

Usually, if the stem includes grandiose ideas, hallucinations or delusions PLUS elevated moods, then pick mania, otherwise pick hypomania.

*It is especially important to remember that hypomania does **NOT present with hallucinations or delusions**. This would often be the difference between picking mania and picking hypomania as the answer.*

Mania	Hypomania
Abnormally elevated mood	A lesser degree of mania with persistent mild elevation of mood and increased activity and energy
Hallucinations or delusions	No hallucinations or delusions
Significant impairment of the patient's day-to-day functioning	No significant impairment of the patient's day-to-day functioning

These are classic signs of mania and hypomania:

- Elevated mood
- Irritability
- Increased energy and activity → *This may be seen as increased performance at work or socially*
- Increased self-esteem



	<ul style="list-style-type: none">• Increased sociability and talkativeness• Increased sex drive• Reduced need for sleep• Difficulty in focusing on one task alone (tasks often started, but not finished) <p>The presence of psychotic symptoms differentiates mania from hypomania</p> <p>Psychotic symptoms</p> <ul style="list-style-type: none">• Delusions of grandeur• Auditory hallucinations <p>Remember, for the exam:</p> <ul style="list-style-type: none">• <i>If you see a patient with high moods → Likely to be hypomania</i>• <i>If you see a patient with high moods and other times depressive moods → Likely to be bipolar disorder</i>• <i>If you see a patient with high moods and psychotic symptoms → Likely to be mania</i>
124.	<p>A 23 year old man feels anxious and agitated when faced with stress. He has an interview in 3 days and would like some help in relieving his symptoms for the interview. What is the SINGLE most appropriate management?</p> <p>A. Selective serotonin reuptake inhibitors B. Cognitive Behavioural Therapy C. Propranolol D. Diazepam E. Rebreath into paper bag</p> <p>Medication usually is not used to treat phobias. However, it is sometimes prescribed to help people cope with the effects of anxiety. Beta-blockers are commonly used. It would be appropriate here as it is only for short term.</p>
125.	<p>A 33 year old schizophrenic says the following. "Life is unfair, I eat air, lawn chair, I like fairs, fairs have food, it must be good, in adulthood, I misunderstood". What term describes this patient's speech?</p> <p>A. Neologism B. Pressure of speech C. Broca's aphasia D. Wernicke's aphasia E. Clang association</p> <p>Clang association</p> <p>Clang association is an abnormality of speech where the connection between words is their sound rather than their meaning. May occur during manic flight of ideas. Clang associations generally sound a bit like rhyming poetry, except that the poems don't seem to make any sense. Example, one may say "systematic, sympathetic, quite pathetic, apologetic, paramedic, your heart is prosthetic.</p>



126.	<p>A 62 year old woman who had a repair of strangulated femoral hernia 2 days ago becomes aggressive and confused. This is followed by a seizure. Her blood tests show:</p> <p>Haemoglobin 129 g/L Mean cell volume (MCV) 112 fL Gamma glutamyl transferase (γGT) 120 u/L Alkaline phosphatase (ALP) 110 iu/L</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Electrolyte imbalance B. Delirium tremens C. Wernicke's encephalopathy D. Korsakoff's psychosis E. Hypoglycaemia</p> <p>Abstinence from alcohol in the hospital can cause delirium tremens. The chronic alcoholism is supported by high MCV and GGT here. The GGT result is more useful than the MCV result as a "red flag" to raise the suspicion that the person is drinking too much.</p> <p>Symptoms fit delirium tremens. Seizures can be seen in delirium tremens. It is unlikely to be Wernicke's encephalopathy or Korsakoff's psychosis as in PLAB they would usually have a triad of confusion, ataxia and ophthalmoplegia</p> <p>Delirium tremens</p> <ul style="list-style-type: none">• Delirium tremens usually begins 24-72 hours after alcohol consumption has been reduced or stopped.• Seen in chronic alcoholics• The symptoms/signs differ from usual withdrawal symptoms in that there are signs of altered mental status. These can include hallucinations (auditory, visual, or olfactory), confusion, delusions, severe agitation. Seizures can also occur.
127.	<p>A 24 year old woman has severe depression 3 months after the birth of her first child. She is breastfeeding but has not cleaned herself or her newborn child for the last 3 weeks. She has lost interest in her hobbies and keeps crying. Her husband is concerned and has brought her to the hospital. However, she is convinced that her husband and her family wants to take her baby away and is likely to kill her. What is the SINGLE most appropriate treatment?</p> <p>A. Fluoxetine B. Citalopram C. Cognitive behavioural therapy (CBT) D. Electroconvulsive Therapy (ECT) E. Haloperidol</p> <p>She has signs of depression and the thoughts of her family and husband trying to harm her are signs of postpartum psychosis. She needs ECT.</p>



128. A 29 year old women has been taking selective serotonin reuptake inhibitors for the past 6 months for depression after the death of her husband 10 months ago. She feels her symptoms have improved and has decided to stop her medications. Several weeks after discontinuing her medications, she feels she has developed pancreatic cancer similarly to her late husband. What is the SINGLE most appropriate next step in management?

- A. Restart selective serotonin reuptake inhibitors
- B. Start on a tricyclic antidepressant
- C. Neuropsychiatric analysis**
- D. Cognitive behavioural therapy
- E. Start antipsychotics

This women requires a psychiatric referral i.e. Neuropsychiatric analysis.

She is having a hypochondriacal delusion. Hypochondriasis can be defined as the persistent belief in the presence of an underlying serious DISEASE, e.g. cancer or HIV.

Examples

- A minor headache is caused by a brain tumour
- A mild rash is the start of skin cancer
- Tiredness is caused by HIV

Reassurance by a doctor will not help a hypochondriac as a hypochondriac would fear that the doctor has just not found the evidence of a serious disease yet.

129. A 62 year old schizophrenic man is brought to the Emergency Department in an agitated state. He is lashing out violently and throws any equipment around him at the hospital staff. He seems to be hearing voices which are causing him distress. Which drug due to it's relative lack of autonomic side effects is a drug of choice in the management of agitation in this man?

- A. Haloperidol**
- B. Diazepam
- C. Risperidone
- D. Clozapine
- E. Olanzapine

In acute psychosis, the drug of choice is haloperidol. It is still considered a first line medication for rapid tranquilization.

Haloperidol due to its relative lack of autonomic side effects (like orthostatic hypotension) is a drug of choice for the management of psychotic episodes particularly in the elderly.



130. A 44 year old alcoholic was admitted for alcohol intoxication. He has been treated and he is now planned for discharge. He admits to not being able to spend a day without drinking. Which of the following statement would show that this man is still dependant on alcohol?

- A. Drinks 10 units of alcohol a week
- B. Drunk driving
- C. Does not feel remorse after drinking
- D. Drinks wine to help him sleep
- E. Drinking alcohol immediately after waking up**

This questions is testing your knowledge on the AUDIT questionnaire.

There are many alcohol screening tools and questionnaires but the AUDIT questionnaire remains one of the top and a must know for the exam. The AUDIT questionnaire stands for Alcohol Use Disorders Identification Test questionnaire.

The CAGE Questions is also another questionnaire but the AUDIT questionnaire remains the more detailed of the two.

AUDIT questionnaire involves questions like:

- How often do you have a drink containing alcohol?
- How many units of alcohol do you drink on a typical day when you are drinking?
- How often have you had 6 or more units if female, or 8 or more if male, on a single occasion in the last year?
- How often during the last year have you found that you were not able to stop drinking once you had started?
- How often during the last year have you failed to do what was normally expected from you because of drinking?
- How often during the last year have you needed an alcoholic drink in the morning to get yourself going after a heavy drinking session?
- How often during the last year have you had a feeling of guilt or remorse after drinking?
- How often during the last year have you been unable to remember what happened the night before because you had been drinking?
- Have you or someone else been injured as a result of your drinking?
- Has a relative or friend or a doctor or another health worker been concerned about your drinking or suggested you cut down?



SAMPLE



RESPIRATORY MEDICINE

SAMPLE



1.	<p>A 28 year old male is admitted with acute exacerbation of asthma. He has a temperature of 38.1°C and a productive cough. He is treated initiated with 100% oxygen and salbutamol nebulizers. Despite treatment, his oxygen saturation is 88% and respiratory rate is 34 breaths/minute. What is the SINGLE most appropriate next step in management?</p> <p>A. Hydrocortisone IV B. IV antibiotics C. IV salbutamol D. IM adrenaline E. IV adrenaline</p> <p>Hydrocortisone should be given first as this is an acute exacerbation of asthma. The aetiology is probably due to a chest infection which initiated the exacerbation for which we will prescribe antibiotics. But, we need to sort out his shortness of breath first and aim for a saturation of 94-98%.</p> <p>Asthma: acute exacerbation – management Immediate treatment:</p> <ul style="list-style-type: none">- Start O2 if saturations <92%, aim sats 94–98%- Salbutamol 5mg (or terbutaline 10 mg) nebulized with O2- Hydrocortisone 100mg IV or prednisolone 40–50mg PO <p>If life-threatening features present:</p> <ul style="list-style-type: none">- Give salbutamol nebulizers every 15min, or 10 mg continuously- Add in ipratropium 0.5mg to nebulizers- Give single dose of magnesium sulfate (MgSO₄) 1.2–2g IV over 20 minutes <p>If improving within 15–30 minutes:</p> <ul style="list-style-type: none">- Nebulized salbutamol every 4 hours- Prednisolone 40–50mg PO OD for 5–7 days
2.	<p>A 27 year old female attends outpatient department with a fever and dry cough. She has had a headache, muscle pain and joint pain for more than one week. She has a temperature of 37.5°C, a pulse of 100 beats/minute, a blood pressure of 110/70 mmHg and a respiratory rate of 20 breaths/minute. A Chest X-ray report shows bilateral patchy consolidation. What is the SINGLE most likely causative organism?</p> <p>A. Pneumococcal pneumonia B. Legionella C. Mycoplasma pneumoniae D. Klebsiella E. Chlamydia pneumoniae</p> <p>Mycoplasma pneumoniae Mycoplasma pneumoniae is a cause of atypical pneumonia which often affects young adults.</p> <p>Features</p> <ul style="list-style-type: none">- the disease typically has a prolonged and gradual onset



	<ul style="list-style-type: none">- flu-like symptoms classically precede a dry cough- bilateral consolidation on x-ray <p>Note: Occasionally, PLAB may also give a presentation of erythema multiforme along with the atypical pneumonia symptoms. Erythema multiforme is one of the features of infection with mycoplasma pneumoniae.</p>
3.	<p>A 74 year old man who has been a smoker since he was 20 has recently been diagnosed with small cell lung cancer. What is the SINGLE most likely serum electrolyte picture that confirms the presence of Syndrome of inappropriate antidiuretic hormone secretion (SIADH)?</p> <p>A. High serum Na, low serum osmolality, high urine osmolality B. Low serum Na, low serum osmolality, high urine osmolality C. Low serum Na, high serum osmolality, high urine osmolality D. High serum Na, low serum osmolality, low urine osmolality E. High serum Na, high serum osmolality, low urine osmolality</p> <p>SIADH</p> <p>The diagnosis requires concentrated urine ($\text{Na}^+ > 20\text{mmol/L}$ and osmolality $> 100\text{mosmol/kg}$) in the presence of hyponatraemia (plasma $\text{Na}^+ < 125\text{mmol/L}$) and low plasma osmolality ($< 260\text{mosmol/kg}$), in the absence of hypovolaemia, oedema, or diuretics.</p> <p>One of the causes is small cell lung cancer</p> <p>Treatment</p> <p>Treat the cause and restrict fluid. Consider salt \pm loop diuretic if severe. Demeclocycline is used rarely. Vasopressin receptor antagonists ('vaptans') are an emerging class of drug used in SIADH and other types of hyponatraemia.</p>
4.	<p>A 68 year old man has malaise and cough for 5 days. He has a temperature of 38.5°C. There is dullness on percussion of the left lung base. What is the SINGLE most appropriate investigation?</p> <p>A. Bronchoscopy B. Chest X-ray C. CT chest D. MRI E. V/Q scan</p> <p>The given presentation is suggestive of pneumonia for which the most appropriate investigation is a Chest X-ray.</p>



5.	<p>A 16 year old boy who attends boarding school feels unwell. He developed a dry cough for the last few days. On examination, there are target lesions seen on the back of his hands. A chest X-ray was performed and it shows bilateral consolidations. What is the SINGLE most likely causative organism?</p> <p>A. Staphylococcus aureus B. Legionella C. Mycoplasma pneumoniae D. Klebsiella E. Streptococcus pneumoniae</p> <p>The diagnosis here is an atypical pneumonia. Mycoplasma pneumoniae is one of those that cause an atypical pneumonia that presents with dry cough. The target lesions are known as erythema multiforme.</p> <p>Mycoplasma pneumoniae Mycoplasma pneumoniae is a cause of atypical pneumonia which often affects young adults.</p> <p>Features</p> <ul style="list-style-type: none">- the disease typically has a prolonged and gradual onset- flu-like symptoms classically precede a dry cough- bilateral consolidation on x-ray <p>Note: Occasionally, PLAB may also give a presentation of erythema multiforme along with the atypical pneumonia symptoms. Erythema multiforme is one of the features of infection with mycoplasma pneumoniae.</p>
6.	<p>A 33 year old man is referred for an X-ray as he complains of a persistent cough, chest pain and excessive purulent sputum. He has a history of recurrent chronic chest infections. On examination, drumstick-shaped fingers were noted. What is the SINGLE most likely diagnosis?</p> <p>A. Fibrosing alveolitis B. Mesothelioma C. Bronchiectasis D. Pulmonary tuberculosis E. Bacterial endocarditis</p> <p>The persistent cough and excessive purulent sputum are symptoms of bronchiectasis. Finger clubbing is not a specific sign but has been seen in bronchiectasis although not very frequently.</p> <p>The most probable diagnosis among the others is bronchiectasis.</p> <p>Occasionally, the question would include chest-x ray findings which show tramlines. This would give a more specific picture pointing towards bronchiectasis.</p>



Only a high-resolution computed tomography (HRCT) chest would give you the diagnosis of bronchiectasis.

Bronchiectasis

Is the irreversible abnormal dilatation of small and medium sized bronchi, with chronic airway inflammation. It is associated with chronic sputum production, chronic cough, recurrent acute chest infections, and airflow obstruction.

Aetiology

The disease is caused by chronic inflammation of the airways. It may therefore be caused by a large number of disorders which cause inflammation and infection, particularly conditions that facilitate infections, which therefore tend to be recurrent and more severe and so cause damage to the lungs. In general, the aetiology is either a one-off infectious insult or an underlying immune deficiency.

- Post-infection: childhood respiratory viral infections (measles, pertussis, influenza, respiratory syncytial virus), tuberculosis, bacterial pneumonia. Infection is the most common cause of bronchiectasis
- Immunodeficiency: HIV infection. Always consider this as a cause in all ages, particularly if there have been serious, persistent or recurrent infections
- Connective tissue diseases e.g. rheumatoid arthritis, Sjögren's syndrome, systemic sclerosis, systemic lupus erythematosus (SLE), Ehlers-Danlos syndrome, Marfan's syndrome
- Toxic insults: Gastric aspiration, inhalation of toxic gases
- Congenital defects: The most important one being cystic fibrosis

Bronchial obstruction and bronchopneumonia are more likely to cause a focal bronchiectasis, whereas the other causes are more likely to result in diffuse disease.

All conditions cause dilation of the airways (due to continued inflammation destroying their elastic and muscular structure) followed by poor mucus clearance, and bacterial colonisation of collected mucus. This then can progress, as chronic infection causes further inflammation in a cyclical fashion.

Note

- *The most important cause to exclude is CF. Even relatively mild bronchiectasis diagnosed in middle age can be due to CF*
- *In the PLAB examination, look out for a history of recurrent pneumonias in the question*

Clinical features

- Persistent cough with purulent copious sputum production
- Nonspecific respiratory symptoms including dyspnoea, chest pain and haemoptysis. Bronchiectasis may progress to respiratory failure and cor pulmonale
- Coarse crackles are the most common finding, heard in early inspiration and often in the lower zones
- Large airway rhonchi (low-pitched snore-like sounds)



	<ul style="list-style-type: none">- Wheeze may be present- Clubbing is found infrequently <p>Diagnosis</p> <ul style="list-style-type: none">- Usually made clinically, with high-resolution computed tomography (HRCT) chest for confirmation.- A baseline chest x-ray should be done in all patients. Early chest x-ray findings may be normal in patients with bronchiectasis. Chest x-ray in advanced cases may show 1 to 2 cm cysts, crowding of the bronchi (tramlines) or ring opacities. The main value of a CXR is excluding other causes of symptoms. <p>Treatment</p> <p>Damaged lung cannot be repaired and so the basis of management is to prevent or at least slow down further deterioration.</p> <ul style="list-style-type: none">- Bronchodilators, chest physical therapy, and postural drainage are used to control and improve drainage of bronchial secretions- If the patient smokes this must be stopped- Immunisation against influenza and pneumococcus- Long-term oral antibiotics for patients having three or more exacerbations per year requiring antibiotic therapy or patients with fewer exacerbations that are causing significant morbidity should be considered for long-term antibiotics. Choice will be dictated by sensitivities and local microbiology advice from sputum test results.
7.	<p>A 22 year old man presents with episodes of dyspnoea, starting suddenly. This usually occurs when he is in a crowded area like a lift. When he is breathless, he also notices tingling around his mouth and he feels light-headed. These episodes usually go away after a while. An arterial sample was taken for blood gases during one of the episodes. What is the SINGLE most likely result of the arterial blood gas (ABG)?</p> <p>Normal Values:</p> <p>PaO₂ > 10 kPa PaCO₂ 4.7–6 kPa pH 7.35 - 7.45 Bicarbonate (HCO₃⁻) 22-26 mmol/L</p> <p>A. PaO₂ = 8.1 kPa, PaCO₂ = 2.6 kPa, pH = 7.55, HCO₃⁻ = 26 mmol/l B. PaO₂ = 13.6 kPa, PaCO₂ = 2.5 kPa, pH = 7.56, HCO₃⁻ = 13 mmol/l C. PaO₂ = 13.5 kPa, PaCO₂ = 6.3 kPa, pH = 7.28, HCO₃⁻ = 24 mmol/l D. PaO₂ = 8.3 kPa, PaCO₂ = 6.4 kPa, pH = 7.27, HCO₃⁻ = 24 mmol/l E. PaO₂ = 13.1 kPa, PaCO₂ = 2.7 kPa, pH = 7.57, HCO₃⁻ = 25 mmol/l</p> <p>To understand this question, we have to go back to basics.</p> <p>First, is the patient hypoxic?</p> <ul style="list-style-type: none">- the PaO₂ >10 kPa is normal



	<p>Second, is the patient acidaemic (pH <7.35) or alkalaemic (pH >7.45)</p> <p>Third, what is the respiratory component: What has happened to the PaCO₂?</p> <ul style="list-style-type: none">- PaCO₂ > 6.0 kPa suggests a respiratory acidosis (or respiratory compensation for a metabolic alkalosis)- PaCO₂ < 4.7 kPa suggests a respiratory alkalosis (or respiratory compensation for a metabolic acidosis) <p>Fourth, what is the metabolic component: What is the bicarbonate level/base excess?</p> <ul style="list-style-type: none">- bicarbonate < 22 mmol/l suggests a metabolic acidosis (or renal compensation for a respiratory alkalosis)- bicarbonate > 26 mmol/l suggests a metabolic alkalosis (or renal compensation for a respiratory acidosis) <p>This patient is suffering from panic attacks.</p> <p>If your answer was A or D, you need to remember that panic attacks usually result in hyperventilation thus PaO₂ is usually normal (PaO₂ > 10 kPa).</p> <p>If your answer was C, you need to remember that hyperventilation which is seen in panic attacks usually result in respiratory alkalosis (pH >7.45).</p> <p>If your answer was B, you need to remember that there would be no metabolic compensation as panic attacks resolves rapidly.</p> <p>Panic attacks key points</p> <ul style="list-style-type: none">- result in hyperventilation which causes a respiratory alkalosis- There would be no metabolic compensation as panic attack resolves rapidly.- We would not expect any metabolic compensation as it takes the kidneys days to conserve acid.- PaO₂ would be normal.
8.	<p>A 10 year old girl with diagnosed asthma is having frequent coughs and wheezing that wakes her up at night. She is compliant with her asthma medication of inhaled corticosteroid 800 mcg/day, short-acting bronchodilators as required, inhaled long-acting B2 agonist (LABA) and theophylline. Her inhaler technique is good. What is the SINGLE most appropriate next step in management?</p> <p>A. Add oral corticosteroids B. Increase dose of inhaled corticosteroids C. Add sodium cromoglycate D. IM adrenaline E. Magnesium sulphate</p>



Asthma - Management of stable asthma in children aged 5 - 12

Asthma is characterised by paroxysmal and reversible obstruction of the airways.

Management of stable asthma in children aged 5 - 12:

The management of stable asthma is now well established with a stepwise approach:

Step 1

Inhaled short-acting B2 agonist as required

Step 2

Add inhaled steroid at 200-400 mcg/day. 200 mcg/day is a appropriate starting dose for many patients

Step 3

Add inhaled long-acting B2 agonist (LABA)

Then assess control of asthma:

- If good response to LABA, then continue LABA
- If benefit from LABA but control still inadequate then continue LABA and increase inhaled corticosteroid dose to 400 micrograms/day
- If no response to LABA, stop LABA and increase inhaled corticosteroid to 400 micrograms/day. And If control still inadequate, institute trial of other therapies, leukotriene receptor antagonist or SR theophylline

Step 4

Consider trials of:

- increasing inhaled steroid up to 800 mcg/day

Step 5

- Use daily steroid tablets

Referral to a respiratory physician would be normal at Step 4-5 depending on expertise.

If you find this stepwise approach too complicated to memorize. Then just memorize it in a very simplified way as stated below:

Step 1 → Inhaled short-acting B2 agonist

Step 2 → Add inhaled steroid

Step 3 → Add inhaled long-acting B2 agonist (LABA)

Step 4 → increasing inhaled steroid to max dose

Step 5 → Add daily steroid tablets



9. A 26 year old smoker has a history of wheezing, chest tightness and breathlessness at night and early morning. Her past medical history includes eczema. What is the SINGLE most likely diagnosis?

A. COPD

B. Asthma

C. Pneumoconiosis

D. Bronchiectasis

E. Chronic bronchitis

Asthma - Risk factors, presentation and diagnosis

Asthma is characterised by paroxysmal and reversible obstruction of the airways.

It is a clinical diagnosis based on:

- A history of recurrent episodes of wheeze, chest tightness, breathlessness, and/or cough, particularly at night
- Evidence of generalized and variable airflow obstruction, which may be detected as intermittent wheeze on examination or via tests such as peak expiratory flow (PEF) measurement

Acute asthma involves:

- Bronchospasm (smooth muscle spasm narrowing airways)
- Excessive production of secretions (plugging airways)

Risk factors

Asthma is due to a combination of genetic and environmental factors

- Personal history of atopy
- Family history of asthma or atopy
- Inner city environment; socio-economic deprivation
- Prematurity and low birth weight
- Viral infections in early childhood
- Smoking
- Maternal smoking

Presentation

- Cough
- SOB
- Wheeze
- Chest tightness.

Classically, these are variable, intermittent, worse at night and in early morning, and are associated with specific triggers

Triggers include

- Pollens
- cat and dog dander
- cold air
- perfumes



Note: Symptoms may present after taking aspirin or beta-blockers

Examination:

- May be entirely normal

In a mild attack

- Slight tachypnoea, tachycardia
- Classically, expiratory wheeze is heard (widespread wheeze)

In a severe life-threatening attacks

- Use of accessory muscles of respiration
- Diminished breath sounds, loud wheezing, hyper-resonance (increased vocal fremitus) and intercostal retraction
- The chest may appear hyperinflated
- Sometimes, in severe life-threatening asthma, there may have no wheeze at all and a silent chest

In long standing/poorly controlled asthma

- Chest deformity/hyperinflation may be seen

Diagnosis:

This is often a clinical diagnosis but should be supported by objective measurements.

The diagnosis is based on the presence of:

- Symptoms (cough, wheeze, breathlessness)
- PFTs show an obstructive pattern that typically reverses with bronchodilation
- Day-to-day peak flow variability
- Otherwise unexplained low forced expiratory volume in one second (FEV1) or peak expiratory flow (historical or serial readings)
- Otherwise unexplained peripheral blood eosinophilia

Where diagnosis is uncertain (intermediate probability) but with demonstration of airway obstruction (FEV1/forced vital capacity (FVC) <0.7), reversibility testing and/or a trial of treatment are suggested.

Chest x-ray findings are nonspecific in an asthmatic attack. It should not be used routinely in the assessment of asthma but consider CXR in any patient presenting with an atypical history or with atypical findings on examination. CXR if atypical symptoms, may show hyperinflation. The chest x-ray may be helpful in ruling out acute infection as the cause of an acute attack.

Asthma VS COPD

One differential diagnosis that is worth mentioning is COPD.

- Reversibility distinguishes asthma from COPD
- COPD is rarely totally refractory to medication.
- Almost all patients with COPD do smoke or have smoked in the past. Asthmatics can also develop COPD.
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10.	<p>A 28 year old male is admitted with acute exacerbation of asthma. He is treated initiated with 100% oxygen, salbutamol nebulizers and hydrocortisone 100mg IV. Despite treatment, his oxygen saturation is 89% and respiratory rate is 30 breaths/minute. What is the SINGLE most appropriate next step in management?</p> <p>A. Prednisolone 40mg PO B. Add in ipratropium 0.5 mg to nebulizers C. IV salbutamol D. IM adrenaline E. Stop administration of oxygen</p> <p>Hydrocortisone should be given first as this is an acute exacerbation of asthma. The aetiology is probably due to a chest infection which initiated the exacerbation for which we will prescribe antibiotics. But, we need to sort out his shortness of breath first and aim for a saturation of 94-98%.</p> <p>Asthma: acute exacerbation - management</p> <p>Immediate treatment:</p> <ul style="list-style-type: none">- Start O2 if saturations <92%, aim sats 94–98%- Salbutamol 5mg (or terbutaline 10 mg) nebulized with O2- Hydrocortisone 100mg IV or prednisolone 40–50mg PO <p>If life-threatening features present:</p> <ul style="list-style-type: none">- Give salbutamol nebulizers every 15min, or 10 mg continuously- Add in ipratropium 0.5mg to nebulizers- Give single dose of magnesium sulfate (MgSO4) 1.2–2g IV over 20 minutes <p>If improving within 15–30 minutes:</p> <ul style="list-style-type: none">- Nebulized salbutamol every 4 hours- Prednisolone 40–50mg PO OD for 5–7 days
11.	<p>A 22 year old, tall thin man develops sudden chest pain and becomes breathless while driving. There is no history of trauma. What is the SINGLE most appropriate investigation?</p> <p>A. Cardiac enzymes B. Chest X-ray C. CT D. ECG E. V/Q scan</p> <p>Tall thin young men are particularly prone to develop pneumothorax. Sudden pain and breathlessness in this young man are highly suggestive of pneumothorax. A standard erect CXRs in inspiration are recommended for the initial diagnosis of pneumothorax.</p>



	<p>Primary pneumothorax</p> <p>Primary spontaneous pneumothoraces occur most commonly in tall thin men aged between 20 and 40. They usually occur in the healthy.</p> <p>Cigarette is a major risk factor for pneumothorax. The mechanism is unclear; a smoking-induced influx of inflammatory cells may both break down elastic lung fibres (causing bulla formation) and cause small airways obstruction (increasing alveolar pressure and the likelihood of interstitial air leak)</p> <p>More common on the right side</p> <ul style="list-style-type: none">- Less than 10% of cases are bilateral- Usually caused by rupture of small subpleural blebs (collections of air <2cm) <p>Presentation</p> <ul style="list-style-type: none">- Dyspnoea, chest pain, cough, tachypnoea- Ipsilateral decreased chest wall movement, hyperresonant hemithorax to percussion
12.	<p>A 56 year old man complains of increased volume of sputum with specks of blood and chest pain. He has a history of recurrent chronic chest infections and deep vein thrombosis which happened 3 years ago. Finger clubbing was noted on examination. A chest X-ray shows tramlines but is otherwise normal. What is the SINGLE most likely diagnosis?</p> <p>A. Pulmonary embolism B. Bronchial carcinoma C. Bronchiectasis D. Pulmonary tuberculosis E. Chronic sinusitis</p> <p>The increased volume of sputum with specks of blood and chest pain are symptoms of bronchiectasis. Finger clubbing is not a specific sign but has been seen in bronchiectasis although not very frequently. A chest-x ray that shows tramlines give a more specific picture pointing towards bronchiectasis. Although these are not diagnostic, the most probable diagnosis among the others is bronchiectasis. Only a high-resolution computed tomography (HRCT) chest would give you the diagnosis of bronchiectasis.</p> <p>It is very rare that the question writers would attempt to trick you. But this is one of the questions that may be misleading as they give a history of DVT which is irrelevant for bronchiectasis.</p> <p>Bronchiectasis</p> <p>Is the irreversible abnormal dilatation of of small and medium sized bronchi, with chronic airway inflammation. It is associated with chronic sputum production, chronic cough, recurrent acute chest infections, and airflow obstruction.</p> <p>Aetiology</p> <p>The disease is caused by chronic inflammation of the airways. It may therefore be caused by a large number of disorders which cause inflammation and infection, particularly conditions</p>



that facilitate infections, which therefore tend to be recurrent and more severe and so cause damage to the lungs. In general, the aetiology is either a one-off infectious insult or an underlying immune deficiency.

- Post-infection: childhood respiratory viral infections (measles, pertussis, influenza, respiratory syncytial virus), tuberculosis, bacterial pneumonia. Infection is the most common cause of bronchiectasis
- Immunodeficiency: HIV infection. Always consider this as a cause in all ages, particularly if there have been serious, persistent or recurrent infections
- Connective tissue diseases e.g. rheumatoid arthritis, Sjögren's syndrome, systemic sclerosis, systemic lupus erythematosus (SLE), Ehlers-Danlos syndrome, Marfan's syndrome
- Toxic insults: Gastric aspiration, inhalation of toxic gases
- Congenital defects: The most important one being cystic fibrosis

Bronchial obstruction and bronchopneumonia are more likely to cause a focal bronchiectasis, whereas the other causes are more likely to result in diffuse disease.

All conditions cause dilation of the airways (due to continued inflammation destroying their elastic and muscular structure) followed by poor mucus clearance, and bacterial colonisation of collected mucus. This then can progress, as chronic infection causes further inflammation in a cyclical fashion.

Note

- *The most important cause to exclude is CF. Even relatively mild bronchiectasis diagnosed in middle age can be due to CF*
- *In the PLAB examination, look out for a history of recurrent pneumonias in the question*

Clinical features

- Persistent cough with purulent copious sputum production
- Nonspecific respiratory symptoms including dyspnoea, chest pain and haemoptysis. Bronchiectasis may progress to respiratory failure and cor pulmonale
- Coarse crackles are the most common finding, heard in early inspiration and often in the lower zones
- Large airway rhonchi (low-pitched snore-like sounds)
- Wheeze may be present
- Clubbing is found infrequently

Diagnosis

- Usually made clinically, with high-resolution computed tomography (HRCT) chest for confirmation.
- A baseline chest x-ray should be done in all patients. Early chest x-ray findings may be normal in patients with bronchiectasis. Chest x-ray in advanced cases may show 1 to 2 cm cysts, crowding of the bronchi (tramlines) or ring opacities. The main value of a CXR is excluding other causes of symptoms.



	<p>Treatment</p> <p>Damaged lung cannot be repaired and so the basis of management is to prevent or at least slow down further deterioration.</p> <ul style="list-style-type: none">- Bronchodilators, chest physical therapy, and postural drainage are used to control and improve drainage of bronchial secretions- If the patient smokes this must be stopped- Immunisation against influenza and pneumococcus- Long-term oral antibiotics for patients having three or more exacerbations per year requiring antibiotic therapy or patients with fewer exacerbations that are causing significant morbidity should be considered for long-term antibiotics. Choice will be dictated by sensitivities and local microbiology advice from sputum test results.
13.	<p>A 6 year old girl has had 2 short episodes of cough and wheeze over the last 12 months. These 2 acute episodes responded quickly to bronchodilator. She has no symptoms or abnormal physical signs at the moment. She has slight eczema and her mother has a history of asthma when she was young. What is the SINGLE most appropriate investigation?</p> <p>A. Chest X-ray B. Peak flow rate diary C. Pulse oximetry D. Spirometry E. Sweat test</p> <p>Spirometry is now preferred over peak flow measurement for initial confirmation of obstruction of airways in the diagnosis of asthma, as it is felt to offer clearer identification of airway obstruction, to be less effort-dependent and more repeatable.</p> <p>Asthma - Risk factors, presentation and diagnosis</p> <p>Asthma is characterised by paroxysmal and reversible obstruction of the airways.</p> <p>It is a clinical diagnosis based on:</p> <ul style="list-style-type: none">- A history of recurrent episodes of wheeze, chest tightness, breathlessness, and/or cough, particularly at night- Evidence of generalized and variable airflow obstruction, which may be detected as intermittent wheeze on examination or via tests such as peak expiratory flow (PEF) measurement <p>Acute asthma involves:</p> <ul style="list-style-type: none">- Bronchospasm (smooth muscle spasm narrowing airways)- Excessive production of secretions (plugging airways) <p>Risk factors</p> <p>Asthma is due to a combination of genetic and environmental factors</p> <ul style="list-style-type: none">- Personal history of atopy- Family history of asthma or atopy- Inner city environment; socio-economic deprivation- Prematurity and low birth weight



- Viral infections in early childhood
- Smoking
- Maternal smoking

Presentation

- Cough
- SOB
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- Chest tightness.

Classically, these are variable, intermittent, worse at night and in early morning, and are associated with specific triggers

Triggers include

- Pollens
- cat and dog dander
- cold air
- perfumes

Note: Symptoms may present after taking aspirin or beta-blockers

Examination:

- May be entirely normal

In a mild attack

- Slight tachypnoea, tachycardia
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In a severe life-threatening attacks

- Use of accessory muscles of respiration
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In long standing/poorly controlled asthma

- Chest deformity/hyperinflation may be seen

Diagnosis:

This is often a clinical diagnosis but should be supported by objective measurements.

The diagnosis is based on the presence of:

- Symptoms (cough, wheeze, breathlessness)
- PFTs show an obstructive pattern that typically reverses with bronchodilation
- Day-to-day peak flow variability
- Otherwise unexplained low forced expiratory volume in one second (FEV1) or peak expiratory flow (historical or serial readings)
- Otherwise unexplained peripheral blood eosinophilia



	<p>Where diagnosis is uncertain (intermediate probability) but with demonstration of airway obstruction (FEV1/forced vital capacity (FVC) <0.7), reversibility testing and/or a trial of treatment are suggested.</p> <p>Chest x-ray findings are nonspecific in an asthmatic attack. It should not be used routinely in the assessment of asthma but consider CXR in any patient presenting with an atypical history or with atypical findings on examination. CXR if atypical symptoms, may show hyperinflation. The chest x-ray may be helpful in ruling out acute infection as the cause of an acute attack.</p> <p>Asthma VS COPD</p> <p>One differential diagnosis that is worth mentioning is COPD.</p> <ul style="list-style-type: none">- Reversibility distinguishes asthma from COPD- COPD is rarely totally refractory to medication.- Almost all patients with COPD do smoke or have smoked in the past. Asthmatics can also develop COPD.
14.	<p>A 34 year old HIV positive man presents with fever, dry cough and shortness of breath. He is tachypnoeic but his chest is clear. Oxygen saturation is normal at rest but drops on exercise. What is the SINGLE most likely diagnosis?</p> <p>A. Cytomegalovirus infection B. Candida infection C. Pneumocystis carinii infection D. Cryptococcal infection E. Toxoplasmosis</p> <p>Pneumocystis jiroveci pneumonia (PCP)</p> <p>Whilst the organism <i>Pneumocystis carinii</i> is now referred to as <i>Pneumocystis jiroveci</i>, the term <i>Pneumocystis carinii</i> pneumonia (PCP) is still in common use.</p> <p><i>Pneumocystis</i> pneumonia (PCP) is a major cause of morbidity and mortality among immunocompromised people. It remains a leading AIDS-defining opportunistic infection in HIV-infected individuals.</p> <p>HIV infection is a particularly important risk factor especially if CD4 count < 200/mm³ thus all patients with a CD4 count < 200/mm³ should receive PCP prophylaxis</p> <p>Features</p> <ul style="list-style-type: none">- Exertional dyspnoea- Gradual onset of dry cough- Fever- Tachypnoea- Chest pain or retrosternal tightness- May be signs of AIDS e.g. Thrush- Chest examination is typically normal



	<p>Desaturation on exercise may suggest the diagnosis in individuals at risk of PCP with normal saturations at rest. This is pathognomonic for PCP.</p> <p><i>Remember, there are so many causes of pneumonia. The question writers would have to give you some sort of clue if they would want you to pick PCP. The two major clues that they can give are a HIV patient, and desaturation on exercise.</i></p> <p>Investigation</p> <ul style="list-style-type: none">- Sputum often fails to show PCP, bronchoalveolar lavage may be needed to demonstrate PCP. Bronchoscopy with bronchoalveolar lavage is the diagnostic investigation of choice in non-HIV-infected patients and in patients with HIV in whom induced sputum analysis is non-diagnostic. <p>Management</p> <ul style="list-style-type: none">- co-trimoxazole (trimethoprim-sulfa) remains the drug of choice-
15.	<p>A 56 year old man who has a history of hypertension and asthma recently had a change of medication which was prescribed by his GP. 2 days after starting the new medication, he develops wheezing and shortness of breath. What is the SINGLE most likely medication that would have caused this?</p> <p>A. Atenolol B. Ramipril C. Bendroflumethiazide D. Verapamil E. Furosemide</p> <p>SAMPLE</p> <p>Symptoms of asthma may present after taking aspirin, NSAIDS or beta-blockers.</p> <p>Asthma - Risk factors, presentation and diagnosis Asthma is characterised by paroxysmal and reversible obstruction of the airways.</p> <p>It is a clinical diagnosis based on:</p> <ul style="list-style-type: none">- A history of recurrent episodes of wheeze, chest tightness, breathlessness, and/or cough, particularly at night- Evidence of generalized and variable airflow obstruction, which may be detected as intermittent wheeze on examination or via tests such as peak expiratory flow (PEF) measurement <p>Acute asthma involves:</p> <ul style="list-style-type: none">- Bronchospasm (smooth muscle spasm narrowing airways)- Excessive production of secretions (plugging airways) <p>Risk factors Asthma is due to a combination of genetic and environmental factors</p> <ul style="list-style-type: none">- Personal history of atopy- Family history of asthma or atopy



- Inner city environment; socio-economic deprivation
- Prematurity and low birth weight
- Viral infections in early childhood
- Smoking
- Maternal smoking

Presentation

- Cough
- SOB
- Wheeze
- Chest tightness.

Classically, these are variable, intermittent, worse at night and in early morning, and are associated with specific triggers

Triggers include

- Pollens
- cat and dog dander
- cold air
- perfumes

Note: Symptoms may present after taking aspirin or beta-blockers

Examination:

- May be entirely normal

In a mild attack

- Slight tachypnoea, tachycardia
- Classically, expiratory wheeze is heard (widespread wheeze)

In a severe life-threatening attacks

- Use of accessory muscles of respiration
- Diminished breath sounds, loud wheezing, hyper-resonance (increased vocal fremitus) and intercostal retraction
- The chest may appear hyperinflated
- Sometimes, in severe life-threatening asthma, there may have no wheeze at all and a silent chest

In long standing/poorly controlled asthma

- Chest deformity/hyperinflation may be seen

Diagnosis:

This is often a clinical diagnosis but should be supported by objective measurements.

The diagnosis is based on the presence of:

- Symptoms (cough, wheeze, breathlessness)
- PFTs show an obstructive pattern that typically reverses with bronchodilation
- Day-to-day peak flow variability
- Otherwise unexplained low forced expiratory volume in one second (FEV1) or peak expiratory flow (historical or serial readings)



	<ul style="list-style-type: none">- Otherwise unexplained peripheral blood eosinophilia <p>Where diagnosis is uncertain (intermediate probability) but with demonstration of airway obstruction (FEV1/forced vital capacity (FVC) <0.7), reversibility testing and/or a trial of treatment are suggested.</p> <p>Chest x-ray findings are nonspecific in an asthmatic attack. It should not be used routinely in the assessment of asthma but consider CXR in any patient presenting with an atypical history or with atypical findings on examination. CXR if atypical symptoms, may show hyperinflation. The chest x-ray may be helpful in ruling out acute infection as the cause of an acute attack.</p> <p>Asthma VS COPD</p> <p>One differential diagnosis that is worth mentioning is COPD.</p> <ul style="list-style-type: none">- Reversibility distinguishes asthma from COPD- COPD is rarely totally refractory to medication.- Almost all patients with COPD do smoke or have smoked in the past. Asthmatics can also develop COPD.
16.	<p>A 29 year old woman has been short of breath for the last 15 hours and is feeling unwell. An arterial blood gas is taken:</p> <p>PaO₂ 8.8 kPa PaCO₂ 3.2 kPa pH 7.50 Bicarbonate (HCO₃⁻) 20 mmol/L</p> <p>Normal Values: PaO₂ > 10 kPa PaCO₂ 4.7–6 kPa pH 7.35 - 7.45 Bicarbonate (HCO₃⁻) 22-26 mmol/L</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Diabetic ketoacidosis B. Methanol overdose C. Panic attack D. Pulmonary embolus E. Severe vomiting</p> <p>This woman has become acutely breathless from a pulmonary emboli. She is hypoxic and, as a reflex to this, is hyperventilating (as evidenced by the low PaCO₂). As a result, she has developed an alkalosis.</p> <p>The other options are much less likely to be the answer:</p>



	<p>Diabetic ketoacidosis and methanol overdose → both causes acidosis. The scenario that was given is alkalosis</p> <p>Panic attacks → This does cause acute alkalosis via hyperventilation (and therefore low PaCO₂ and a high pH), but tends to happen in the absence of hypoxia rather than as a response to it (as in pulmonary embolism).</p> <p>Severe vomiting → causes a metabolic alkalosis (i.e. a high pH with a high HCO₃⁻). PaO₂ is not likely to decrease</p> <p>First, is the patient hypoxic?</p> <ul style="list-style-type: none">- the PaO₂ >10 kPa is normal <p>Second, is the patient acidaemic (pH <7.35) or alkalaemic (pH >7.45)</p> <p>Third, what is the respiratory component: What has happened to the PaCO₂?</p> <ul style="list-style-type: none">- PaCO₂ > 6.0 kPa suggests a respiratory acidosis (or respiratory compensation for a metabolic alkalosis)- PaCO₂ < 4.7 kPa suggests a respiratory alkalosis (or respiratory compensation for a metabolic acidosis) <p>Fourth, what is the metabolic component: What is the bicarbonate level/base excess?</p> <ul style="list-style-type: none">- bicarbonate < 22 mmol/l suggests a metabolic acidosis (or renal compensation for a respiratory alkalosis)- bicarbonate > 26 mmol/l suggests a metabolic alkalosis (or renal compensation for a respiratory acidosis) <p>In summary</p> <p>She has developed respiratory alkalosis with renal compensation.</p>
17.	<p>A 33 year old man has mild headache and myalgia for 2 days followed by high fever, chills, rigors and a cough. His cough was initially dry but progressed to be productive. He has just returned from a conference in Greece where he mentions that he swam and used the hot tubs in the hotel. He has a temperature of 38.1°C and is seen to be dyspnoeic. Chest X-ray shows patchy alveolar infiltrates. What is the SINGLE most likely organism which would have caused his symptoms?</p> <p>A. Legionella pneumophila B. Mycoplasma pneumoniae C. Staphylococcus aureus D. Streptococcus pneumoniae E. Klebsiella pneumoniae</p>



	<p>Legionella pneumophila is the causative organism that causes Legionnaires' disease which is a severe, potentially fatal acute pneumonia acquired by droplet inhalation of water contaminated.</p> <p>L. pneumophila is found in natural water supplies and soil. It is also found in many recirculation and water supply systems. For the purpose of this exam, look out for hints like traveling, hotel stays, whirlpool spas, hot tubs as often they would put one of these hints in the question, if the examiners would like you to select Legionella pneumophila as the answer.</p>
18.	<p>A 56 year old lady with lung cancer presents with urinary retention, postural hypotension, diminished reflexes and sluggish pupillary reaction. What is the SINGLE most likely explanation for her symptoms?</p> <p>A. Paraneoplastic syndrome B. Progression of lung cancer C. Brain metastasis D. Hyponatraemia E. Spinal cord compression</p> <p>These features are well known features of autonomic neuropathy which can be a result of paraneoplastic syndrome.</p> <p>Paraneoplastic syndromes are rare and believed to occur when cancer-fighting antibodies (white blood cells) mistakenly attack normal cells in the nervous system. When one of these syndromes is associated with lung cancer, it is often with small cell lung cancer or because the cancer has metastasized to a particular part of the body.</p> <p>Autoimmune paraneoplastic autonomic neuropathy is a rare paraneoplastic syndrome (PNS), which manifests as disturbance in sympathetic and/or parasympathetic nervous system function.</p>
19.	<p>A 25 year old tall man presents to A&E with increasing dyspnoea and right sided chest pain. He has been a heavy smoker for the past 4 years. He has no past medical history. What is the SINGLE most likely diagnosis?</p> <p>A. Pulmonary embolism B. Myocardial infarction C. Asthma D. Pleural effusion E. Primary Pneumothorax</p> <p>Dyspnoea and chest pain in a young tall man with no past medical history could only be primary spontaneous pneumothorax.</p> <p>The giveaway here is the word "tall". When the word "tall" is used in combination with dyspnoea, pneumothorax should be in your differential.</p>



	<p>Primary pneumothorax</p> <p>Primary spontaneous pneumothoraces occur most commonly in tall thin men aged between 20 and 40. They usually occur in the healthy.</p> <p>Cigarette is a major risk factor for pneumothorax. The mechanism is unclear; a smoking-induced influx of inflammatory cells may both break down elastic lung fibres (causing bulla formation) and cause small airways obstruction (increasing alveolar pressure and the likelihood of interstitial air leak)</p> <p>More common on the right side</p> <ul style="list-style-type: none">- Less than 10% of cases are bilateral- Usually caused by rupture of small subpleural blebs (collections of air <2cm) <p>Presentation</p> <ul style="list-style-type: none">- Dyspnoea, chest pain, cough, tachypnoea- Ipsilateral decreased chest wall movement, hyperresonant hemithorax to percussion <p>Diagnosis</p> <p>Chest X-ray is the diagnostic test in most cases, revealing a visible lung edge and absent lung markings peripherally.</p>
20.	<p>A 34 year old woman with a smoking history has had an uneventful laparoscopic cholecystectomy 18 hours ago. She is now complaining of shortness of breath. She has a pulse rate of 108 bpm and a temperature of 37.8°C. There are signs of reduced air entry at the right base. Chest X-ray shows no obvious abnormality. What is the SINGLE most appropriate next step?</p> <p>A. Unfractionated heparin B. IV Ceftriaxone C. PO Chlorpheniramine D. Chest physiotherapy E. D-dimers</p> <p>The four most likely common causes of post-operative breathlessness are:</p> <ul style="list-style-type: none">- Infection/atelectasis- Pulmonary embolism- Left ventricular failure (LVF) (fluid overload)- Exacerbation of underlying lung disease such as COPD <p>The time of the surgery in this question helps us with the diagnosis. As this is an early complication (hours rather than days), it is likely to be either atelectasis or pulmonary embolism. But since there are no other factors pointing towards a pulmonary embolism and there is a smoking history, the more likely diagnosis here would be atelectasis.</p>



	<p>Basal atelectasis is commoner in smokers and following abdominal or trans-thoracic procedures.</p> <p>Note that a D-dimer level is unhelpful, as it will be raised by many different intra- and post-operative mechanisms. So D-dimers in this scenario would not help you differentiate pulmonary embolism from atelectasis. CRP and WCC are also largely unhelpful, as these are frequently raised post-operatively.</p> <p>Chest physio will help if the cause is atelectasis.</p> <p>Atelectasis is the collapse or closure of a lung resulting in reduced or absent gas exchange</p> <p>Management of atelectasis</p> <p>Adequate analgesia to encourage expectoration, nebulized saline, chest physiotherapy, deep breathing and coughing, postural drainage, incentive spirometry. If lung does not re-inflate, consider bronchoscopy to suction out secretions</p> <p>Pneumonia may happen in about 3 days if atelectasis is not resolved. If this happens, fever will persist and Chest x-ray will show infiltrates.</p>
21.	<p>A 65 year old retired builder complains of persistent dull chest pain and shortness of breath. He is a smoker and started smoking since a young age. He looks thin and his clothes are oversized. Finger clubbing is noted on examination. What is the SINGLE most likely diagnosis?</p> <p>A. Fibrosing alveolitis B. Bronchiectasis C. Tuberculosis D. Mesothelioma E. Cystic fibrosis</p> <p>The history that he is a builder is the question writers way to hint to you that this patient had asbestos exposure in the past. Exposure to asbestos is a well-established cause of mesothelioma, with occupational exposure being documented in 70-80% of those affected.</p> <p>Finger clubbing is usually caused by underlying asbestosis. Although finger clubbing is commonly seen in questions with mesothelioma, it is actually very rare in clinical practice. Finger clubbing is seen in less than 1% of patients with mesothelioma</p> <p>Mesothelioma Malignant mesothelioma is a tumour of mesothelial cells that usually occurs in the pleura, and rarely in the peritoneum or other organs. It is associated with occupational exposure to asbestos</p> <p>The latent period between exposure and development of the tumour may be up to 45 years. Compensation is often available.</p>



	<p>Clinical features:</p> <ul style="list-style-type: none">- Chest pain- Dyspnoea- Weight loss- Finger clubbing- Recurrent pleural effusions <p><i>Remember: Shortness of breath, chest pain and weight loss are the most common symptoms</i></p> <p>Signs of metastases:</p> <ul style="list-style-type: none">- Lymphadenopathy- Hepatomegaly- Bone pain or tenderness- Abdominal pain or obstruction (peritoneal malignant mesothelioma) <p>Tests:</p> <ul style="list-style-type: none">- CXR or CT will show pleural thickening or effusion <p>Diagnosis is made on histology, usually following a thoracoscopy. Thoracoscopy under local anaesthetic enables drainage of pleural fluid, pleural biopsy and pleurodesis.</p> <p>Often the diagnosis is only made post-mortem.</p> <p>Management:</p> <p>Is usually symptomatic, as cure is usually only possible with surgery for extremely localised (stage I) mesothelioma. The role and order of adjuvant or neoadjuvant use of chemotherapy, radiotherapy and surgery has still not been established although chemotherapy has been shown can improve survival. Surgery is hard to evaluate as there are too few randomized trials. Radiotherapy is controversial. Pleurodesis and indwelling intra-pleural drain may help</p>
22.	<p>A 11 year old girl has a history of asthma and is currently on short-acting bronchodilators. Her parents feels that it is not well controlled as she frequently wakes up at night with wheezing and coughing. Her inhaler technique is good. What is the SINGLE most appropriate next step in management?</p> <p>A. Add oral corticosteroids B. Add inhaled steroid C. Add sodium cromoglycate D. Add leukotriene receptor antagonist E. Add inhaled long-acting B2 agonist (LABA)</p> <p>Asthma - Management of stable asthma in children aged 5 - 12</p> <p>Asthma is characterised by paroxysmal and reversible obstruction of the airways.</p> <p>Management of stable asthma in children aged 5 - 12:</p> <p>The management of stable asthma is now well established with a stepwise approach:</p>



Step 1

Inhaled short-acting B2 agonist as required

Step 2

Add inhaled steroid at 200-400 mcg/day. 200 mcg/day is a appropriate starting dose for many patients

Step 3

Add inhaled long-acting B2 agonist (LABA)

Then assess control of asthma:

- If good response to LABA, then continue LABA
- If benefit from LABA but control still inadequate then continue LABA and increase inhaled corticosteroid dose to 400 micrograms/day
- If no response to LABA, stop LABA and increase inhaled corticosteroid to 400 micrograms/day. And If control still inadequate, institute trial of other therapies, leukotriene receptor antagonist or SR theophylline

Step 4

Consider trials of:

- increasing inhaled steroid up to 800 mcg/day

Step 5

- Use daily steroid tablets

Referral to a respiratory physician would be normal at Step 4-5 depending on expertise.

If you find this stepwise approach too complicated to memorize. Then just memorize it in a very simplified way as stated below:

Step 1 → Inhaled short-acting B2 agonist

Step 2 → Add inhaled steroid

Step 3 → Add inhaled long-acting B2 agonist (LABA)

Step 4 → increasing inhaled steroid to max dose

Step 5 → Add daily steroid tablets

- 23.** A 10 year old boy who takes regular dose inhaled steroids for his longstanding asthma has been advised to use bronchodilators to control his acute attacks. His parents are unsure when he should use his bronchodilator. What is the SINGLE most appropriate investigation to perform?
- A. Chest X-ray
 - B. Pulmonary function test
 - C. Peak flow rate diary**
 - D. Pulse oximetry
 - E. Blood test to look for eosinophilia



Peak flow rate diary shows diurnal variation. This diary shows when the bronchoconstriction remains worse and guides to use bronchodilators prior to that times.

Asthma - Risk factors, presentation and diagnosis

Asthma is characterised by paroxysmal and reversible obstruction of the airways.

It is a clinical diagnosis based on:

- A history of recurrent episodes of wheeze, chest tightness, breathlessness, and/or cough, particularly at night
- Evidence of generalized and variable airflow obstruction, which may be detected as intermittent wheeze on examination or via tests such as peak expiratory flow (PEF) measurement

Acute asthma involves:

- Bronchospasm (smooth muscle spasm narrowing airways)
- Excessive production of secretions (plugging airways)

Risk factors

Asthma is due to a combination of genetic and environmental factors

- Personal history of atopy
- Family history of asthma or atopy
- Inner city environment; socio-economic deprivation
- Prematurity and low birth weight
- Viral infections in early childhood
- Smoking
- Maternal smoking

Presentation

- Cough
- SOB
- Wheeze
- Chest tightness.

Classically, these are variable, intermittent, worse at night and in early morning, and are associated with specific triggers

Triggers include

- Pollens
- cat and dog dander
- cold air
- perfumes

Note: Symptoms may present after taking aspirin or beta-blockers

Examination:

- May be entirely normal

In a mild attack

- Slight tachypnoea, tachycardia



- Classically, expiratory wheeze is heard (widespread wheeze)

In a severe life-threatening attacks

- Use of accessory muscles of respiration
- Diminished breath sounds, loud wheezing, hyper-resonance (increased vocal fremitus) and intercostal retraction
- The chest may appear hyperinflated
- Sometimes, in severe life-threatening asthma, there may have no wheeze at all and a silent chest

In long standing/poorly controlled asthma

- Chest deformity/hyperinflation may be seen

Diagnosis:

This is often a clinical diagnosis but should be supported by objective measurements.

The diagnosis is based on the presence of:

- Symptoms (cough, wheeze, breathlessness)
- PFTs show an obstructive pattern that typically reverses with bronchodilation
- Day-to-day peak flow variability
- Otherwise unexplained low forced expiratory volume in one second (FEV1) or peak expiratory flow (historical or serial readings)
- Otherwise unexplained peripheral blood eosinophilia

Where diagnosis is uncertain (intermediate probability) but with demonstration of airway obstruction (FEV1/forced vital capacity (FVC) <0.7), reversibility testing and/or a trial of treatment are suggested.

Chest x-ray findings are nonspecific in an asthmatic attack. It should not be used routinely in the assessment of asthma but consider CXR in any patient presenting with an atypical history or with atypical findings on examination. CXR if atypical symptoms, may show hyperinflation. The chest x-ray may be helpful in ruling out acute infection as the cause of an acute attack.

Asthma VS COPD

One differential diagnosis that is worth mentioning is COPD.

- Reversibility distinguishes asthma from COPD
- COPD is rarely totally refractory to medication.
- Almost all patients with COPD do smoke or have smoked in the past. Asthmatics can also develop COPD.



24. A 38 year old woman is brought to the A&E after falling down the stairs and injuring her rib. She complains of shortness of breath. A chest X-ray was performed to rule out a rib fracture. Bilateral hilar lymphadenopathy was seen on the chest X-ray. On auscultation, there are vesicular breath sounds. On examination, there are red lesions on both her shins which are tender. What is the SINGLE most likely diagnosis?

- A. Bronchial asthma
- B. Cystic fibrosis
- C. Sarcoidosis**
- D. Bronchiectasis
- E. Silicosis

In PLAB, whenever you see the term “bilateral hilar lymphadenopathy” with a lesion on the shin, you should be thinking of Sarcoidosis.

The lesion on the shin is erythema nodosum which are blue or red lesions and are seen in people suffering from sarcoidosis.

The syndrome here is Lofgren syndrome which includes erythema nodosum, arthritis, and hilar adenopathy. Lofgren is a distinct sarcoid syndrome.

Sarcoidosis

Sarcoidosis is a systemic disease of unknown cause, characterized histologically by the presence of nonspecific noncaseating granulomas in the lung and other organs.

Features

Sarcoidosis can involve almost any organ system, but pulmonary involvement is most common.

- acute: erythema nodosum, bilateral hilar lymphadenopathy, fever, polyarthralgia
- insidious: dyspnoea, non-productive cough, malaise, weight loss
- skin: lupus pernio
- Hypercalcemia due to increased circulation of vitamin D produced by macrophages.

Commonly, sarcoidosis is discovered in a completely asymptomatic patient, usually in the form of hilar adenopathy on a chest x-ray.

There are two distinct sarcoid syndromes with acute presentation:

- Lofgren syndrome includes erythema nodosum, arthritis, and hilar adenopathy.
- Heerfordt- Waldenstrom syndrome, which describes fever, parotid enlargement, uveitis, and facial palsy

Lung involvement in sarcoidosis occurs in 90% of patients sometime in their course.

Chest X-Ray.

Shows bilateral hilar adenopathy,



	<p>Laboratory Findings. Elevation in angiotensin-converting enzyme (ACE) can be seen in 60% of patients with sarcoidosis. But note that ACE should not be used to diagnose sarcoidosis. ACE levels are nonspecific but can be used to follow the course of the disease.</p> <p>Abnormalities in liver function tests are seen in 30% of patients PFTs may be normal or show a restrictive pattern.</p> <p>Diagnosis. The definitive diagnosis of sarcoidosis rests on biopsy of suspected tissues, which show noncaseating granulomas.</p> <p>Treatment Generally in the setting of organ impairment, a trial of steroids may be used. There are certain scenarios in which steroids should be used but are beyond what will be asked in PLAB.</p>
25.	<p>A 19 year old man has a history of exercise induced asthma which has previously been controlled using a salbutamol inhaler as required. He is taking beclomethasone inhaler regularly but he now gets asthma attacks with exercise. What is the SINGLE most appropriate action?</p> <p>A. Add on tiotropium B. Take regular salbutamol and add on budesonide inhaler C. Add on sodium cromoglycate D. Add on oral steroid E. Increase Inhaled steroid</p> <p>Sodium cromoglycate can be added for exercise-induced asthma.</p> <p>Exercise-induced asthma</p> <p>Exercise-induced asthma although following the stepwise approach has a slight difference in management.</p> <p>For most patients, exercise-induced asthma is an illustration of poorly controlled asthma and regular treatment including inhaled corticosteroids should therefore be reviewed. If exercise is a specific problem in patients already taking inhaled corticosteroids who are otherwise well controlled, consider adding either:</p> <ul style="list-style-type: none">- leukotriene receptor antagonist- a long-acting beta 2 agonist- an oral beta 2 agonist- sodium cromoglycate- theophylline <p>An inhaled short-acting beta2 agonists used immediately before exercise is the drug of choice.</p>



Asthma - Management of stable asthma in children aged 5 - 12

Asthma is characterised by paroxysmal and reversible obstruction of the airways.

Management of stable asthma in children aged 5 - 12:

The management of stable asthma is now well established with a stepwise approach:

Step 1

Inhaled short-acting B2 agonist as required

Step 2

Add inhaled steroid at 200-400 mcg/day. 200 mcg/day is a appropriate starting dose for many patients

Step 3

Add inhaled long-acting B2 agonist (LABA)

Then assess control of asthma:

- If good response to LABA, then continue LABA
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Step 4

Consider trials of:

- increasing inhaled steroid up to 800 mcg/day

Step 5

- Use daily steroid tablets

Referral to a respiratory physician would be normal at Step 4-5 depending on expertise.

If you find this stepwise approach too complicated to memorize. Then just memorize it in a very simplified way as stated below:

Step 1 → Inhaled short-acting B2 agonist

Step 2 → Add inhaled steroid

Step 3 → Add inhaled long-acting B2 agonist (LABA)

Step 4 → increasing inhaled steroid to max dose

Step 5 → Add daily steroid tablets



26.	<p>A 55 year old woman with a persistent cough and history of smoking develops left sided chest pain exacerbated by deep breathing. She has a temperature of 38.2°C and basal crackles are heard on auscultation. What is the SINGLE most likely diagnosis?</p> <p>A. Dissecting aneurysm B. Pericarditis C. Pneumonia D. Pneumothorax E. Pulmonary embolism</p> <p>These are typical signs and symptoms of pneumonia. Pleuritic pain can occur with pneumonia. Crackles can be heard in patients with pneumonia.</p> <p>Symptoms of cough, purulent sputum which may be blood-stained or rust-coloured, breathlessness, fever, malaise are usually how pneumonia presents.</p>
27.	<p>A 50 year old man has had hoarseness of voice and a left drooping eyelid for the past 2 months. He also has diminished sweating on same side of face. Finger clubbing is noted on examination. He smokes 20 cigarettes a day for the last 30 years. What is the SINGLE most likely diagnosis?</p> <p>A. Laryngeal carcinoma B. Thyroid carcinoma C. Carcinoma of right bronchus D. Mesothelioma E. Pancoast tumour</p> <p>A pancoast tumour is a tumour of the pulmonary apex. The hoarseness of voice is due to compression of the recurrent laryngeal nerve. An ipsilateral invasion of the cervical sympathetic plexus leading to Horner's syndrome (miosis, enophthalmos, ptosis). The history of smoking and finger clubbing gives a clue towards a bronchogenic neoplasm.</p> <p>Pancoast's Syndrome Classically caused by an apical (superior pulmonary sulcus) malignant neoplasm of the lung. The neoplasm is usually bronchogenic in origin (most commonly squamous cell carcinoma, sometimes adenocarcinoma and large-cell carcinoma).</p> <p>Presentation This syndrome results from the invasion of a number of structures and tissues around the thoracic inlet and may be characterised by:</p> <ul style="list-style-type: none">- An ipsilateral invasion of the cervical sympathetic plexus leading to Horner's syndrome (miosis, enophthalmos, ptosis)- Ipsilateral reflex sympathetic dystrophy may occur.- Shoulder and arm pain (brachial plexus invasion C8-T2) leading to wasting of the intrinsic hand muscles and paraesthesiae in the medial side of the arm.- Less commonly, unilateral recurrent laryngeal nerve palsy producing unilateral vocal cord paralysis (hoarse voice ± bovine cough)



	<p>- There may be arm oedema secondary to the compression of blood vessels.</p>
28.	<p>A 65 year old known case of liver cancer and metastasis presents with gastric reflux and bloatedness. Osteoporosis was diagnosed on a dexa scan. He also has shortness of breath and basal consolidation in the left lung was seen on a Chest X-ray. What is the SINGLE most appropriate next step in management?</p> <p>A. Proton pump inhibitor IV B. Alendronate C. IV antibiotics D. Analgesia E. Proton pump inhibitor PO</p> <p>In reality, he would be started on all of them. But for the purpose of PLAB, if you were to choose among the answers provided, IV antibiotics would be the most important one to start as this patient has pneumonia and this should be treated first.</p>
29.	<p>A 68 year old woman presents to the emergency department from her nursing home complaining of shortness of breath. She has a temperature of 38.7°C and productive cough. Her sputum is noted to be a rusty colour. On auscultation, crackles are heard over the right lung base. A chest X-ray was done and shows right lower lobe consolidation. She has a blood pressure of 100/65 mmHg and a pulse rate of 102 beats/minute. A urinalysis shows 1+ leucocytes with no nitrates or protein. What is the SINGLE most likely organism causing her symptoms?</p> <p>A. Streptococcus pneumoniae B. Staphylococcus aureus C. Coxiella burnetii D. Mycoplasma pneumoniae E. Escherichia coli</p> <p>This is a typical presentation of streptococcus pneumoniae infection. Streptococcus pneumoniae (pneumococcus) is the most common cause of community-acquired pneumonia.</p> <p>The urinalysis has no correlation with the pneumonia. It is important to remember that urinary tract infections are a common cause of sepsis in the elderly, but in this case, it is not a UTI as the findings are associated with pneumonia.</p>



30. A 29 year old HIV positive man attends the outpatient department with complaints of persistent cough and copious amount of purulent sputum. He also has dyspnoea and chest pain. On auscultation, inspiratory crepitations are heard at the base of the lung. A chest X-ray shows tram track opacities. What is the SINGLE most likely diagnosis?

A. Interstitial lung disease

B. Bronchiectasis

C. Tuberculosis

D. Influenza

E. Sarcoidosis

The persistent cough and copious amount of purulent sputum are symptoms of bronchiectasis. HIV that is one of the aetiologies of bronchiectasis. Inspiratory crepitations and a chest-x ray that shows tramlines give a more specific picture pointing towards bronchiectasis. Although these are not diagnostic, the most probable diagnosis among the others is bronchiectasis. Only a high-resolution computed tomography (HRCT) chest would give you the diagnosis of bronchiectasis.

Bronchiectasis

Is the irreversible abnormal dilatation of of small and medium sized bronchi, with chronic airway inflammation. It is associated with chronic sputum production, chronic cough, recurrent acute chest infections, and airflow obstruction.

Aetiology

The disease is caused by chronic inflammation of the airways. It may therefore be caused by a large number of disorders which cause inflammation and infection, particularly conditions that facilitate infections, which therefore tend to be recurrent and more severe and so cause damage to the lungs. In general, the aetiology is either a one-off infectious insult or an underlying immune deficiency.

- Post-infection: childhood respiratory viral infections (measles, pertussis, influenza, respiratory syncytial virus), tuberculosis, bacterial pneumonia. Infection is the most common cause of bronchiectasis
- Immunodeficiency: HIV infection. Always consider this as a cause in all ages, particularly if there have been serious, persistent or recurrent infections
- Connective tissue diseases e.g. rheumatoid arthritis, Sjögren's syndrome, systemic sclerosis, systemic lupus erythematosus (SLE), Ehlers-Danlos syndrome, Marfan's syndrome
- Toxic insults: Gastric aspiration, inhalation of toxic gases
- Congenital defects: The most important one being cystic fibrosis

Bronchial obstruction and bronchopneumonia are more likely to cause a focal bronchiectasis, whereas the other causes are more likely to result in diffuse disease.

All conditions cause dilation of the airways (due to continued inflammation destroying their elastic and muscular structure) followed by poor mucus clearance, and bacterial colonisation



of collected mucus. This then can progress, as chronic infection causes further inflammation in a cyclical fashion.

Note

- *The most important cause to exclude is CF. Even relatively mild bronchiectasis diagnosed in middle age can be due to CF*
- *In the PLAB examination, look out for a history of recurrent pneumonias in the question*

Clinical features

- Persistent cough with purulent copious sputum production
- Nonspecific respiratory symptoms including dyspnoea, chest pain and haemoptysis. Bronchiectasis may progress to respiratory failure and cor pulmonale
- Coarse crackles are the most common finding, heard in early inspiration and often in the lower zones
- Large airway rhonchi (low-pitched snore-like sounds)
- Wheeze may be present
- Clubbing is found infrequently

Diagnosis

- Usually made clinically, with high-resolution computed tomography (HRCT) chest for confirmation.
- A baseline chest x-ray should be done in all patients. Early chest x-ray findings may be normal in patients with bronchiectasis. Chest x-ray in advanced cases may show 1 to 2 cm cysts, crowding of the bronchi (tramlines) or ring opacities. The main value of a CXR is excluding other causes of symptoms.

Treatment

Damaged lung cannot be repaired and so the basis of management is to prevent or at least slow down further deterioration.

- Bronchodilators, chest physical therapy, and postural drainage are used to control and improve drainage of bronchial secretions
- If the patient smokes this must be stopped
- Immunisation against influenza and pneumococcus
- Long-term oral antibiotics for patients having three or more exacerbations per year requiring antibiotic therapy or patients with fewer exacerbations that are causing significant morbidity should be considered for long-term antibiotics. Choice will be dictated by sensitivities and local microbiology advice from sputum test results.



31.	<p>A 27 year old male is admitted with acute exacerbation of asthma. He is treated initiated with 100% oxygen and salbutamol nebulizers. IV hydrocortisone was prescribed but it was not available in the department. What is the SINGLE most appropriate next step in management?</p> <p>A. Oral prednisolone 40 mg B. IV magnesium sulphate C. IV salbutamol D. IM adrenaline E. IV adrenaline</p> <p>Oral prednisolone and IV hydrocortisone has been shown to have similar efficacy.</p> <p>Asthma: acute exacerbation - management</p> <p>Immediate treatment:</p> <ul style="list-style-type: none">- Start O2 if saturations <92%, aim sats 94–98%- Salbutamol 5mg (or terbutaline 10 mg) nebulized with O2- Hydrocortisone 100mg IV or prednisolone 40–50mg PO <p>If life-threatening features present:</p> <ul style="list-style-type: none">- Give salbutamol nebulizers every 15min, or 10 mg continuously- Add in ipratropium 0.5mg to nebulizers- Give single dose of magnesium sulfate (MgSO4) 1.2–2g IV over 20 minutes <p>If improving within 15–30 minutes:</p> <ul style="list-style-type: none">- Nebulized salbutamol every 4 hours- Prednisolone 40–50mg PO OD for 5–7 days
32.	<p>A 24 year old male is admitted with acute severe asthma. He is treated initiated with 100% oxygen, nebulized salbutamol, and IV hydrocortisone. Ipratropium bromide was added to nebulizers. Despite the initial treatment there has been no improvement. What is the SINGLE most appropriate next step in management?</p> <p>A. IV aminophylline B. IV magnesium sulphate C. IV salbutamol D. IM adrenaline E. IV adrenaline</p> <p>Next step would be IV magnesium sulphate.</p> <p>Asthma: acute exacerbation - management</p> <p>Immediate treatment:</p> <ul style="list-style-type: none">- Start O2 if saturations <92%, aim sats 94–98%- Salbutamol 5mg (or terbutaline 10 mg) nebulized with O2



	<ul style="list-style-type: none">- Hydrocortisone 100mg IV or prednisolone 40–50mg PO <p>If life-threatening features present:</p> <ul style="list-style-type: none">- Give salbutamol nebulizers every 15min, or 10 mg continuously- Add in ipratropium 0.5mg to nebulizers- Give single dose of magnesium sulfate (MgSO₄) 1.2–2g IV over 20 minutes <p>If improving within 15–30 minutes:</p> <ul style="list-style-type: none">- Nebulized salbutamol every 4 hours- Prednisolone 40–50mg PO OD for 5–7 days
33.	<p>A 45 year old chronic smoker attends the outpatient department with complaints of persistent cough and copious amount of purulent sputum. He had history of measles in the past. On examination, finger clubbing is noted and inspiratory crepitations on auscultation is heard. A chest X-ray shows tram track opacities. What is the SINGLE most likely diagnosis?</p> <p>A. Interstitial lung disease B. Bronchiectasis C. Asthma D. COPD E. Sarcoidosis</p> <p>The history of smoking here is irrelevant as smoking does not appear to be an independent risk factor but smoking cessation is important as part of the management if the patient does smoke.</p> <p>The persistent cough and copious amount of purulent sputum are symptoms of bronchiectasis. Measles is a childhood viral infection that is one of the aetiologies of bronchiectasis. Finger clubbing is not a specific sign but has been seen in bronchiectasis although not very frequently. Inspiratory crepitations and a chest-x ray that shows tramlines give a more specific picture pointing towards bronchiectasis. Although these are not diagnostic, the most probable diagnosis among the others is bronchiectasis. Only a high-resolution computed tomography (HRCT) chest would give you the diagnosis of bronchiectasis.</p> <p>Bronchiectasis Is the irreversible abnormal dilatation of of small and medium sized bronchi, with chronic airway inflammation. It is associated with chronic sputum production, chronic cough, recurrent acute chest infections, and airflow obstruction.</p> <p>Aetiology The disease is caused by chronic inflammation of the airways. It may therefore be caused by a large number of disorders which cause inflammation and infection, particularly conditions that facilitate infections, which therefore tend to be recurrent and more severe and so cause damage to the lungs. In general, the aetiology is either a one-off infectious insult or an underlying immune deficiency.</p>



- Post-infection: childhood respiratory viral infections (measles, pertussis, influenza, respiratory syncytial virus), tuberculosis, bacterial pneumonia. Infection is the most common cause of bronchiectasis
- Immunodeficiency: HIV infection. Always consider this as a cause in all ages, particularly if there have been serious, persistent or recurrent infections
- Connective tissue diseases e.g. rheumatoid arthritis, Sjögren's syndrome, systemic sclerosis, systemic lupus erythematosus (SLE), Ehlers-Danlos syndrome, Marfan's syndrome
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Note

- *The most important cause to exclude is CF. Even relatively mild bronchiectasis diagnosed in middle age can be due to CF*
- *In the PLAB examination, look out for a history of recurrent pneumonias in the question*

Clinical features

- Persistent cough with purulent copious sputum production
- Nonspecific respiratory symptoms including dyspnoea, chest pain and haemoptysis. Bronchiectasis may progress to respiratory failure and cor pulmonale
- Coarse crackles are the most common finding, heard in early inspiration and often in the lower zones
- Large airway rhonchi (low-pitched snore-like sounds)
- Wheeze may be present
- Clubbing is found infrequently

Diagnosis

- Usually made clinically, with high-resolution computed tomography (HRCT) chest for confirmation.
- A baseline chest x-ray should be done in all patients. Early chest x-ray findings may be normal in patients with bronchiectasis. Chest x-ray in advanced cases may show 1 to 2 cm cysts, crowding of the bronchi (tramlines) or ring opacities. The main value of a CXR is excluding other causes of symptoms.

Treatment

Damaged lung cannot be repaired and so the basis of management is to prevent or at least slow down further deterioration.



	<ul style="list-style-type: none">- Bronchodilators, chest physical therapy, and postural drainage are used to control and improve drainage of bronchial secretions- If the patient smokes this must be stopped- Immunisation against influenza and pneumococcus- Long-term oral antibiotics for patients having three or more exacerbations per year requiring antibiotic therapy or patients with fewer exacerbations that are causing significant morbidity should be considered for long-term antibiotics. Choice will be dictated by sensitivities and local microbiology advice from sputum test results.
34.	<p>A 64 year old man who was previously exposed to asbestos for 35 years while working as a builder has chest pain and shortness of breath. The diagnosis of mesothelioma has been made. His shortness of breath has been worsening over the last couple of days. A recent chest x-ray shows bilateral pleural effusion. What is the SINGLE most appropriate management?</p> <p>A. Indwelling pleural drain B. Physiotherapy C. Radiation therapy D. Pneumonectomy E. Chemotherapy</p> <p>This patient's symptoms are due to the pleural effusion secondary to mesothelioma. A long-term indwelling pleural drainage may be useful in this scenario where he has a malignant effusion.</p> <p>Chemotherapy, radiotherapy and surgery are used in the management for mesothelioma but this patient's major problem is his current shortness of breath which needs to be treated. Palliative radiotherapy provides pain relief in some patients with chest wall pain but is less useful in the treatment of breathlessness. Radiotherapy and surgery can be quite controversial and is unlikely to be the answer in PLAB as it requires a great depth of knowledge.</p> <p>Mesothelioma Malignant mesothelioma is a tumour of mesothelial cells that usually occurs in the pleura, and rarely in the peritoneum or other organs. It is associated with occupational exposure to asbestos</p> <p>The latent period between exposure and development of the tumour may be up to 45 years. Compensation is often available.</p> <p>Clinical features:</p> <ul style="list-style-type: none">- Chest pain- Dyspnoea- Weight loss- Finger clubbing- Recurrent pleural effusions



	<p><i>Remember: Shortness of breath, chest pain and weight loss are the most common symptoms</i></p> <p>Signs of metastases:</p> <ul style="list-style-type: none">- Lymphadenopathy- Hepatomegaly- Bone pain or tenderness- Abdominal pain or obstruction (peritoneal malignant mesothelioma) <p>Tests:</p> <ul style="list-style-type: none">- CXR or CT will show pleural thickening or effusion <p>Diagnosis is made on histology, usually following a thoracoscopy. Thoracoscopy under local anaesthetic enables drainage of pleural fluid, pleural biopsy and pleurodesis.</p> <p>Often the diagnosis is only made post-mortem.</p> <p>Management:</p> <p>Is usually symptomatic, as cure is usually only possible with surgery for extremely localised (stage I) mesothelioma. The role and order of adjuvant or neoadjuvant use of chemotherapy, radiotherapy and surgery has still not been established although chemotherapy has been shown can improve survival. Surgery is hard to evaluate as there are too few randomized trials. Radiotherapy is controversial. Pleurodesis and indwelling intra-pleural drain may help</p>
35.	<p>A 24 year old male is admitted with acute exacerbation of asthma. He is treated initiated with 100% oxygen. He continues to deteriorate. What is the SINGLE most appropriate next step in management?</p> <p>Plab Lab Values</p> <p>A. Salbutamol nebulized with oxygen</p> <p>B. IV magnesium sulphate</p> <p>C. IV salbutamol</p> <p>D. IM adrenaline</p> <p>E. IV adrenaline</p> <p>The next step is to give salbutamol nebulisers.</p> <p>Magnesium sulphate is also used in management of acute exacerbation but it is used further down the line.</p> <p>Asthma: acute exacerbation - management</p> <p>Immediate treatment:</p> <ul style="list-style-type: none">- Start O2 if saturations <92%, aim sats 94–98%- Salbutamol 5mg (or terbutaline 10 mg) nebulized with O2- Hydrocortisone 100mg IV or prednisolone 40–50mg PO



	<p>If life-threatening features present:</p> <ul style="list-style-type: none">- Give salbutamol nebulizers every 15min, or 10 mg continuously- Add in ipratropium 0.5mg to nebulizers- Give single dose of magnesium sulfate (MgSO₄) 1.2–2g IV over 20 minutes <p>If improving within 15–30 minutes:</p> <ul style="list-style-type: none">- Nebulized salbutamol every 4 hours- Prednisolone 40–50mg PO OD for 5–7 days
36.	<p>A 33 year old chronic smoker attends the outpatient department with complaints of persistent cough, copious amount of purulent sputum and dyspnoea. He has a history of recurrent chest infections in the past. Coarse crackles are found at the base of his lung on auscultation. Bronchiectasis is suspected. What is the SINGLE most definitive test to diagnose bronchiectasis?</p> <p>A. High-resolution computed tomography (HRCT) chest B. Serum immunoglobulins C. Chest X-ray D. Lung function tests E. Bronchoscopy</p> <p>The gold standard for diagnosis is HRCT of the chest. HRCT has a very high sensitivity and specificity for diagnosis and has now replaced bronchography.</p> <p>In adults, bronchoscopy and bronchoscopic sampling of the lower respiratory tract do not have a place in the routine investigation of patients with bronchiectasis. Bronchoscopy is used for patients in whom serial testing of sputum does not yield microbiological information and who are not responding well to treatment or if HRCT suggests atypical mycobacterial infection and sputum culture is negative.</p> <p>Bronchiectasis</p> <p>Is the irreversible abnormal dilatation of of small and medium sized bronchi, with chronic airway inflammation. It is associated with chronic sputum production, chronic cough, recurrent acute chest infections, and airflow obstruction.</p> <p>Aetiology</p> <p>The disease is caused by chronic inflammation of the airways. It may therefore be caused by a large number of disorders which cause inflammation and infection, particularly conditions that facilitate infections, which therefore tend to be recurrent and more severe and so cause damage to the lungs. In general, the aetiology is either a one-off infectious insult or an underlying immune deficiency.</p> <ul style="list-style-type: none">- <u>Post-infection</u>: childhood respiratory viral infections (measles, pertussis, influenza, respiratory syncytial virus), tuberculosis, bacterial pneumonia. Infection is the most common cause of bronchiectasis- <u>Immunodeficiency</u>: HIV infection. Always consider this as a cause in all ages, particularly if there have been serious, persistent or recurrent infections



- Connective tissue diseases e.g. rheumatoid arthritis, Sjögren's syndrome, systemic sclerosis, systemic lupus erythematosus (SLE), Ehlers-Danlos syndrome, Marfan's syndrome
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Note

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- *In the PLAB examination, look out for a history of recurrent pneumonias in the question*

Clinical features

- Persistent cough with purulent copious sputum production
- Nonspecific respiratory symptoms including dyspnoea, chest pain and haemoptysis. Bronchiectasis may progress to respiratory failure and cor pulmonale
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Diagnosis

- Usually made clinically, with high-resolution computed tomography (HRCT) chest for confirmation.
- A baseline chest x-ray should be done in all patients. Early chest x-ray findings may be normal in patients with bronchiectasis. Chest x-ray in advanced cases may show 1 to 2 cm cysts, crowding of the bronchi (tramlines) or ring opacities. The main value of a CXR is excluding other causes of symptoms.

Treatment

Damaged lung cannot be repaired and so the basis of management is to prevent or at least slow down further deterioration.

- Bronchodilators, chest physical therapy, and postural drainage are used to control and improve drainage of bronchial secretions
- If the patient smokes this must be stopped
- Immunisation against influenza and pneumococcus
- Long-term oral antibiotics for patients having three or more exacerbations per year requiring antibiotic therapy or patients with fewer exacerbations that are causing



	significant morbidity should be considered for long-term antibiotics. Choice will be dictated by sensitivities and local microbiology advice from sputum test results.
37.	<p>A 32 year old female smoker has a history of wheeze, shortness of breath and fever. Her past medical history includes eczema. FEV1/forced vital capacity (FVC) was measured and was found to be low. This was improved after taking bronchodilators. What is the SINGLE most likely diagnosis?</p> <p>A. COPD B. Infective exacerbation of asthma C. Tuberculosis D. Bronchiectasis E. Chronic bronchitis</p> <p>Asthma - Risk factors, presentation and diagnosis Asthma is characterised by paroxysmal and reversible obstruction of the airways.</p> <p>It is a clinical diagnosis based on:</p> <ul style="list-style-type: none">- A history of recurrent episodes of wheeze, chest tightness, breathlessness, and/or cough, particularly at night- Evidence of generalized and variable airflow obstruction, which may be detected as intermittent wheeze on examination or via tests such as peak expiratory flow (PEF) measurement <p>Acute asthma involves:</p> <ul style="list-style-type: none">- Bronchospasm (smooth muscle spasm narrowing airways)- Excessive production of secretions (plugging airways) <p>Risk factors Asthma is due to a combination of genetic and environmental factors</p> <ul style="list-style-type: none">- Personal history of atopy- Family history of asthma or atopy- Inner city environment; socio-economic deprivation- Prematurity and low birth weight- Viral infections in early childhood- Smoking- Maternal smoking <p>Presentation</p> <ul style="list-style-type: none">- Cough- SOB- Wheeze- Chest tightness. <p>Classically, these are variable, intermittent, worse at night and in early morning, and are associated with specific triggers</p> <p><u>Triggers include</u></p> <ul style="list-style-type: none">- Pollens



- cat and dog dander
- cold air
- perfumes

Note: Symptoms may present after taking aspirin or beta-blockers

Examination:

- May be entirely normal

In a mild attack

- Slight tachypnoea, tachycardia
- Classically, expiratory wheeze is heard (widespread wheeze)

In a severe life-threatening attacks

- Use of accessory muscles of respiration
- Diminished breath sounds, loud wheezing, hyper-resonance (increased vocal fremitus) and intercostal retraction
- The chest may appear hyperinflated
- Sometimes, in severe life-threatening asthma, there may have no wheeze at all and a silent chest

In long standing/poorly controlled asthma

- Chest deformity/hyperinflation may be seen

Diagnosis:

This is often a clinical diagnosis but should be supported by objective measurements.

The diagnosis is based on the presence of:

- Symptoms (cough, wheeze, breathlessness)
- PFTs show an obstructive pattern that typically reverses with bronchodilation
- Day-to-day peak flow variability
- Otherwise unexplained low forced expiratory volume in one second (FEV1) or peak expiratory flow (historical or serial readings)
- Otherwise unexplained peripheral blood eosinophilia

Where diagnosis is uncertain (intermediate probability) but with demonstration of airway obstruction (FEV1/forced vital capacity (FVC) <0.7), reversibility testing and/or a trial of treatment are suggested.

Chest x-ray findings are nonspecific in an asthmatic attack. It should not be used routinely in the assessment of asthma but consider CXR in any patient presenting with an atypical history or with atypical findings on examination. CXR if atypical symptoms, may show hyperinflation. The chest x-ray may be helpful in ruling out acute infection as the cause of an acute attack.

Asthma VS COPD

One differential diagnosis that is worth mentioning is COPD.

- Reversibility distinguishes asthma from COPD
- COPD is rarely totally refractory to medication.



	<ul style="list-style-type: none">- Almost all patients with COPD do smoke or have smoked in the past. Asthmatics can also develop COPD.
38.	<p>A 17 year old boy with a history of asthma suddenly develops chest pain and increasing breathlessness during a game of football. He has reduced breath sounds on the right side. His oxygen saturation is 94% on air. What is the SINGLE most appropriate investigation?</p> <p>A. Sweat test B. Chest X-ray C. CT chest D. Exercise challenge E. D-dimer</p> <ul style="list-style-type: none">• Do not forget that acute severe asthma may have an underlying pneumothorax.• Dyspnoea and chest pain in a young man are features of primary spontaneous pneumothorax.• A standard erect CXRs in inspiration are recommended for the initial diagnosis of pneumothorax. <p>Primary pneumothorax Primary spontaneous pneumothoraces occur most commonly in tall thin men aged between 20 and 40. They usually occur in the healthy.</p> <p>Cigarette is a major risk factor for pneumothorax. The mechanism is unclear; a smoking-induced influx of inflammatory cells may both break down elastic lung fibres (causing bulla formation) and cause small airways obstruction (increasing alveolar pressure and the likelihood of interstitial air leak)</p> <ul style="list-style-type: none">- More common on the right side- Less than 10% of cases are bilateral- Usually caused by rupture of small subpleural blebs (collections of air <2cm) <p>Presentation</p> <ul style="list-style-type: none">- Dyspnoea, chest pain, cough, tachypnoea- Ipsilateral decreased chest wall movement, hyperresonant hemithorax to percussion
39.	<p>An 8 year old girl with diagnosed asthma is having frequent night coughs and mild exercise-induced wheezing. She is compliant with her asthma medication of inhaled corticosteroid 400 mcg/day and short-acting bronchodilators as required. Her inhaler technique is good. What is the SINGLE most appropriate next step in management?</p> <p>A. Add leukotriene antagonist B. Add oral theophylline C. Add regular inhaled long-acting B2 agonist (LABA) D. Increase dose of inhaled corticosteroid E. Short course of oral corticosteroid</p>



Asthma - Management of stable asthma in children aged 5 - 12

Asthma is characterised by paroxysmal and reversible obstruction of the airways.

Management of stable asthma in children aged 5 - 12:

The management of stable asthma is now well established with a stepwise approach:

Step 1

Inhaled short-acting B2 agonist as required

Step 2

Add inhaled steroid at 200-400 mcg/day. 200 mcg/day is a appropriate starting dose for many patients

Step 3

Add inhaled long-acting B2 agonist (LABA)

Then assess control of asthma:

- If good response to LABA, then continue LABA
- If benefit from LABA but control still inadequate then continue LABA and increase inhaled corticosteroid dose to 400 micrograms/day
- If no response to LABA, stop LABA and increase inhaled corticosteroid to 400 micrograms/day. And If control still inadequate, institute trial of other therapies, leukotriene receptor antagonist or SR theophylline

Step 4

Consider trials of:

- increasing inhaled steroid up to 800 mcg/day

Step 5

- Use daily steroid tablets

Referral to a respiratory physician would be normal at Step 4-5 depending on expertise.

If you find this stepwise approach too complicated to memorize. Then just memorize it in a very simplified way as stated below:

Step 1 → Inhaled short-acting B2 agonist

Step 2 → Add inhaled steroid

Step 3 → Add inhaled long-acting B2 agonist (LABA)

Step 4 → increasing inhaled steroid to max dose

Step 5 → Add daily steroid tablets



40.	<p>A 50 year old chronic smoker attended the outpatient department with complaints of chronic productive cough, dyspnoea and wheeze. A chest X-ray was ordered and reported as hyperinflated lung with flattened hemidiaphragm and a small cardiac silhouette. Full blood count shows an increase in haematocrit. What is the SINGLE most likely diagnosis?</p> <p>A. Interstitial lung disease B. Wegener's granulomatosis C. Lung cancer D. Chronic obstructive pulmonary disease (COPD) E. Amyloidosis</p> <p>The findings are in keeping with COPD. Haematocrit can be raised in COPD.</p> <p>Chest X-ray is not required for diagnosis of COPD, and repeated CXR is unnecessary, unless other diagnoses are being considered (most importantly, lung cancer or bronchiectasis).</p> <p>If a chest X-ray is ordered, these are the findings:</p> <ul style="list-style-type: none">- Hyperinflated lung fields- >7 posterior ribs seen- Flattened diaphragms- Small heart- May see bullae
41.	<p>A 62 year old man has been smoking 15 cigarettes a day for the past 40 years. He is a retired builder and has been working since he was 24 year old. He presents with chest pain, shortness of breath, and has lost significant weight over the last couple of years. Chest X-ray shows bilateral fibrosis and left sided pleural effusion. What is the SINGLE best investigations that will lead to diagnosis?</p> <p>A. Acid fast staining B. Cytology of pleural fluid aspiration C. Magnetic resonance imaging D. Pleural biopsy E. Computed tomography</p> <p>Histology is the most appropriate way to diagnose mesothelioma. The history of working as a builder is the question writers way of hinting of asbestos exposure. The association with smoking greatly increases the possibility of developing mesothelioma. The best investigation is pleural biopsy.</p> <p>Pleural fluid aspiration and cytological analysis may provide the diagnosis (sensitivity range 32–84%) but still the most definitive diagnosis is histology thus pleural biopsy gives the best choice.</p>

**Mesothelioma**

Malignant mesothelioma is a tumour of mesothelial cells that usually occurs in the pleura, and rarely in the peritoneum or other organs. It is associated with occupational exposure to asbestos

The latent period between exposure and development of the tumour may be up to 45 years. Compensation is often available.

Clinical features:

- Chest pain
- Dyspnoea
- Weight loss
- Finger clubbing
- Recurrent pleural effusions

Remember: Shortness of breath, chest pain and weight loss are the most common symptoms

Signs of metastases:

- Lymphadenopathy
- Hepatomegaly
- Bone pain or tenderness
- Abdominal pain or obstruction (peritoneal malignant mesothelioma)

Tests:

- CXR or CT will show pleural thickening or effusion

Diagnosis is made on histology, usually following a thoracoscopy. Thoracoscopy under local anaesthetic enables drainage of pleural fluid, pleural biopsy and pleurodesis.

Often the diagnosis is only made post-mortem.

Management:

Is usually symptomatic, as cure is usually only possible with surgery for extremely localised (stage I) mesothelioma. The role and order of adjuvant or neoadjuvant use of chemotherapy, radiotherapy and surgery has still not been established although chemotherapy has been shown can improve survival. Surgery is hard to evaluate as there are too few randomized trials. Radiotherapy is controversial. Pleurodesis and indwelling intra-pleural drain may help



42. A 53 year old man with previous history of chronic obstructive pulmonary disease presents with breathlessness and purulent sputum. His oxygen saturation are 85% on air. Arterial blood gas show:

PaO₂ = 7.6 kPa

PaCO₂ = 7.1 kPa

What is the SINGLE most appropriate initial management for his condition?

A. 24% oxygen

B. Mechanical ventilation

C. 100% oxygen

D. Nebulized salbutamol

E. Intravenous antibiotics

This patient is experiencing an exacerbation of COPD. Giving oxygen would be the first action. He has hypoxemia and hypercapnia (type 2 respiratory failure). The history of COPD alone should prompt you to pick 24% oxygen instead of 100% oxygen. This is because 100% oxygen will abolish the hypoxic drive and worsen hypercapnia. 24-28% oxygen significantly increases haemoglobin saturation, without risking further underventilation and a rising pCO₂, which can cause coma and death. Remember that low-concentration oxygen (of 24-28%) is used in patients with chronic obstructive pulmonary disease (COPD) or any other conditions causing underventilation and CO₂ retention.

The aim of (controlled) oxygen therapy is to raise the PaO₂ without worsening the acidosis. Therefore, give oxygen at no more than 28% (via venturi mask, 4 L/minute) or no more than 2 L/minute (via nasal prongs) and aim for oxygen saturation 88-92% for patients with a history of COPD until arterial blood gases (ABGs) have been checked.

Remember, for COPD patients, you should be aiming for an SaO₂ of 88-92%, (compared with 94-98% for most acutely ill patients NOT at risk of hypercapnic respiratory failure).

43. A 39 year old chronic smoker attends the outpatient department with complaints of persistent cough and copious amount of purulent sputum. He has recurrent chronic chest infections in the past. Finger clubbing is noted in examination and inspiratory crackles are heard on auscultation. A chest X-ray was done and results were normal. What is the SINGLE most likely diagnosis?

A. Emphysema

B. Rheumatoid arthritis

C. Bronchiectasis

D. Lung cancer

E. Sarcoidosis

The history of smoking here is irrelevant as smoking does not appear to be an independent risk factor but smoking cessation is important as part of the management if the patient does smoke.



The persistent cough and copious amount of purulent sputum are symptoms of bronchiectasis. Finger clubbing is not a specific sign but has been seen in bronchiectasis although not very frequently. Inspiratory crackles can be found on bronchiectasis. Chest X-ray in early stages can be normal. Although these are not diagnostic, the most probable diagnosis among the others is bronchiectasis. Only a high-resolution computed tomography (HRCT) chest would give you the diagnosis of bronchiectasis.

Bronchiectasis

Is the irreversible abnormal dilatation of small and medium sized bronchi, with chronic airway inflammation. It is associated with chronic sputum production, chronic cough, recurrent acute chest infections, and airflow obstruction.

Aetiology

The disease is caused by chronic inflammation of the airways. It may therefore be caused by a large number of disorders which cause inflammation and infection, particularly conditions that facilitate infections, which therefore tend to be recurrent and more severe and so cause damage to the lungs. In general, the aetiology is either a one-off infectious insult or an underlying immune deficiency.

- Post-infection: childhood respiratory viral infections (measles, pertussis, influenza, respiratory syncytial virus), tuberculosis, bacterial pneumonia. Infection is the most common cause of bronchiectasis
- Immunodeficiency: HIV infection. Always consider this as a cause in all ages, particularly if there have been serious, persistent or recurrent infections
- Connective tissue diseases e.g. rheumatoid arthritis, Sjögren's syndrome, systemic sclerosis, systemic lupus erythematosus (SLE), Ehlers-Danlos syndrome, Marfan's syndrome
- Toxic insults: Gastric aspiration, inhalation of toxic gases
- Congenital defects: The most important one being cystic fibrosis

Bronchial obstruction and bronchopneumonia are more likely to cause a focal bronchiectasis, whereas the other causes are more likely to result in diffuse disease.

All conditions cause dilation of the airways (due to continued inflammation destroying their elastic and muscular structure) followed by poor mucus clearance, and bacterial colonisation of collected mucus. This then can progress, as chronic infection causes further inflammation in a cyclical fashion.

Note

- *The most important cause to exclude is CF. Even relatively mild bronchiectasis diagnosed in middle age can be due to CF*
- *In the PLAB examination, look out for a history of recurrent pneumonias in the question*



	<p>Clinical features</p> <ul style="list-style-type: none">- Persistent cough with purulent copious sputum production- Nonspecific respiratory symptoms including dyspnoea, chest pain and haemoptysis. Bronchiectasis may progress to respiratory failure and cor pulmonale- Coarse crackles are the most common finding, heard in early inspiration and often in the lower zones- Large airway rhonchi (low-pitched snore-like sounds)- Wheeze may be present- Clubbing is found infrequently <p>Diagnosis</p> <ul style="list-style-type: none">- Usually made clinically, with high-resolution computed tomography (HRCT) chest for confirmation.- A baseline chest x-ray should be done in all patients. Early chest x-ray findings may be normal in patients with bronchiectasis. Chest x-ray in advanced cases may show 1 to 2 cm cysts, crowding of the bronchi (tramlines) or ring opacities. The main value of a CXR is excluding other causes of symptoms. <p>Treatment</p> <p>Damaged lung cannot be repaired and so the basis of management is to prevent or at least slow down further deterioration.</p> <ul style="list-style-type: none">- Bronchodilators, chest physical therapy, and postural drainage are used to control and improve drainage of bronchial secretions- If the patient smokes this must be stopped- Immunisation against influenza and pneumococcus- Long-term oral antibiotics for patients having three or more exacerbations per year requiring antibiotic therapy or patients with fewer exacerbations that are causing significant morbidity should be considered for long-term antibiotics. Choice will be dictated by sensitivities and local microbiology advice from sputum test results.
44.	<p>A 10 year old girl is brought to the emergency department by her dad after having fallen in the park. Her elbows are full of cuts and she has not stopped crying since the injury. Her medical history includes asthma. What is the SINGLE most appropriate analgesia to administer?</p> <p>A. Aspirin B. Diclofenac C. Co-codamol D. Ibuprofen E. Paracetamol</p> <p>Symptoms of asthma may present after taking aspirin, NSAIDS or beta-blockers. Thus, NSAIDS like ibuprofen and diclofenac should not be used here.</p>



The association between non-steroidal anti-inflammatory drugs (NSAIDs), including aspirin, and the precipitation of asthma is well documented but, in reality, it is not often seen. So in clinical practice, one may use NSAIDs even if patient has asthma, but for the purpose of PLAB, never give NSAIDs if the patient has asthma.

Codeine should only be used to relieve acute moderate pain in children older than 12 years and only if it cannot be relieved by other painkillers such as paracetamol or ibuprofen alone. Since the child here is under 12, co-codamol should not be used.

Paracetamol is the only available choice.

- 45.** A 54 year old patient 7 days after a total hip replacement presents with acute onset breathlessness, and chest pain. On examination, an elevated jugular venous pressure was observed. Her right calf looks swollen. Her pulse rate is 95 bpm and respiratory rate is 24/min. Which SINGLE investigations will be most helpful in leading to a diagnosis?

- A. Chest X-ray
B. CT pulmonary angiogram (CTPA)
C. V/Q scan
D. D-Dimer
E. Doppler ultrasound of legs

Two-level PE Wells score

Clinical feature	Points
Clinical signs and symptoms of DVT (minimum of leg swelling and pain with palpation of the deep veins)	3
An alternative diagnosis is less likely than PE	3
Heart rate > 100 beats per minute	1.5
Immobilisation for more than 3 days or surgery in the previous 4 weeks	1.5
Previous DVT/PE	1.5
Haemoptysis	1
Malignancy (on treatment, treated in the last 6 months, or palliative)	1

Clinical

probability simplified scores

- PE likely - more than 4 points
- PE unlikely - 4 points or less

More than 4 points → Arrange an immediate computed tomography pulmonary angiogram (CTPA)

4 points or less → Arrange a D-dimer test. If this is positive arrange an immediate computed tomography pulmonary angiogram (CTPA)

If anytime there is a delay in getting the CTPA → Give low-molecular weight heparin until the scan is performed



	<p>If the patient has an allergy to contrast media or renal impairment → A V/Q scan should be used instead of a CTPA</p> <p><i>Occasionally, questions will have a question with a patient with typical signs and symptoms of pulmonary embolism and options of a CTPA and V/Q scans would be in the mix. Which one would you perform?</i></p> <ul style="list-style-type: none">- <i>Pick the CTPA over the V/Q scans</i> <p>The consensus view from the British Thoracic Society and NICE guidelines is as follows:</p> <ul style="list-style-type: none">- <i>Computed tomographic pulmonary angiography (CTPA) is now the recommended initial lung-imaging modality for non-massive PE. Advantages compared to V/Q scans include speed, easier to perform out-of-hours, a reduced need for further imaging and the possibility of providing an alternative diagnosis if PE is excluded</i>- <i>If the CTPA is negative then patients do not need further investigations or treatment for PE</i> <p><i>Also note that you should pick the CTPA over V/Q scans even if the patient is pregnant. The RCOG guidelines for Thromboembolic Disease in Pregnancy and the Puerperium clearly state that:</i></p> <ul style="list-style-type: none">- <i>When the chest X-ray is abnormal and there is a clinical suspicion of PE, CTPA should be performed in preference to a V/Q scan. [New 2015]</i>
46.	<p>A 61 year old man has suddenly become very short of breath. In the last hour, he has had a CT-guided biopsy of a mass in the right lung. His temperature is 36.5°C, heart rate is 120 bpm, BP 90/60 mmHg, and SaO₂ 78% on 15L oxygen. He looks cyanosed, his trachea is deviated towards the left, and breath sounds are much louder over the left hemi-thorax. Which is the SINGLE most appropriate course of action?</p> <p>A. Arterial blood gas B. Urgent chest X-ray C. Insertion of a cannula into the right second intercostal space D. Insertion of a cannula into the left second intercostal space E. Insertion of a chest drain</p> <p>This man has rapidly developed the signs of a pneumothorax. Having just had a needle inserted into his chest, this is almost certainly an iatrogenic pneumothorax. The deviation of the trachea suggests that it is under tension and so needs urgent reversal. This is done by introducing a cannula into the pleural space, usually in the second anterior intercostal space mid-clavicular line. Air should be removed until the patient is no longer compromised and then an intercostal tube can be inserted into the pleural space.</p> <p>The other less appropriate answers: Investigations like ABG and chest X-ray → should be deferred as this is a serious situation that would lead to cardiorespiratory arrest unless addressed.</p>



Insertion of a chest drain → will be needed but not until the air has been removed.

Insertion of a cannula into the left second intercostal space → Clearly a wrong answer as the trachea is deviated towards the left. This means that the tension pneumothorax is on the right.

Tension Pneumothorax

Presentation

- Acute respiratory distress
- Hypotension
- Raised jugular venous pressure
- Tracheal deviation away from the pneumothorax side
- Reduced air entry on affected side

Management of a tension pneumothorax

If strong clinical suspicion, give high-flow oxygen and insert large-bore cannula into second intercostal space in midclavicular line on side of pneumothorax.

- Do not wait for a chest X-ray if patient seriously compromised or cardiac arrest has occurred or if the diagnosis is clinically certain
- Hiss of escaping air confirms diagnosis
- Air should be aspirated until the patient is less distressed. Then insert a chest drain in mid-axillary line, leaving the cannula in place until you have finished and the underwater seal is bubbling satisfactorily

Comparing simple and tension pneumothorax

Simple Pneumothorax		Tension Pneumothorax	
Trachea	Upside Down T	Trachea	Arrow East
Expansion	Down Arrow	Expansion	Down Arrow
Percussion Note	Up Arrow	Percussion Note	Up Arrow
Breath sounds	Down Arrow	Breath sounds	Down Arrow
		Neck Veins	Up Arrow

- 47.** A 33 year old man has a temperature of 38.5°C, productive cough and chest pain on the right side on inspiration. He has a blood pressure of 100/60 mmHg and a pulse rate of 108 beats/minute. He appears slightly short of breath and has an oxygen saturation of 94% on room air. What is the SINGLE most likely organism causing the patient's symptoms?

- A. Gram +ve cocci**
B. Coagulase +ve cocci
C. Gram +ve Bacilli
D. Acid-Fast Bacilli
E. Gram –ve cocci



	<p>Streptococcus pneumoniae (pneumococcus) is the most common cause of community-acquired pneumonia. It is a gram +ve cocci.</p>
48.	<p>A 28 year old female who has returned from the USA to the UK presents to Accident & Emergency with shortness of breath and a productive cough beginning 3 days after her return to the United Kingdom. Her cough initially contained blood but is now dry. Her only significant history is that she is on the combined oral contraceptive pill. What is the SINGLE most likely diagnosis for this woman's symptoms?</p> <p>A. Community acquired pneumonia B. Pulmonary embolism C. Pulmonary tuberculosis D. Lymphoma E. Lung cancer</p> <p>In PLAB 1, when the examiners want you to choose pulmonary embolism, they will mention:</p> <ol style="list-style-type: none">1. History of prolonged immobility (such as airplane travel)2. Risk factor for PE (COCP, surgery, obesity etc.)3. Patient experiencing shortness of breath <p>Pulmonary Embolism</p> <p><u>Risk factors (in order of importance):</u></p> <ul style="list-style-type: none">- Surgery- Pregnancy (including the postnatal period)- Lower limb injury- Malignancy- Reduced mobility- Previous VTE (venous thromboembolism) <p><u>Signs and symptoms:</u></p> <p>Remember that these are non-specific</p> <p><u>Symptoms include:</u></p> <ul style="list-style-type: none">- Dyspnoea.- Pleuritic chest pain or retrosternal chest pain.- Cough and haemoptysis. <p><u>Signs include:</u></p> <ul style="list-style-type: none">- Tachypnoea, tachycardia.- Hypoxia, which may cause anxiety, restlessness, agitation and impaired consciousness.- Pyrexia.- Elevated jugular venous pressure.- Gallop heart rhythm, a widely split second heart sound, tricuspid regurgitant murmur.- Pleural rub.- Systemic hypotension and cardiogenic shock.



	<p>All you need to remember in terms of diagnosis and management for the PLAB 1 exam is that CTPA is the gold standard for diagnosis of pulmonary embolism and that immediate administration of LMWH (low molecular weight heparin) or fondaparinux must be given once the diagnosis is confirmed.</p>
49.	<p>A 70 year old man admits to asbestos exposure 20 years ago. He was a heavy smoker but has quit smoking 3 years ago. He has noted weight loss and hoarseness of voice. Which is the SINGLE most likely type of cancer associated with the risk factors and symptoms present?</p> <p>A. Basal cell carcinoma B. Bronchial carcinoma C. Oesophageal carcinoma D. Nasopharyngeal carcinoma E. Oral carcinoma</p> <p>Approximately 95% of all primary lung tumours are bronchial carcinomas.</p> <p>Primary bronchial cancers are classified as follows:</p> <ul style="list-style-type: none">- small-cell lung cancers (SCLCs)- non-small-cell lung cancers (NSCLCs) <p><i>Adenocarcinoma accounts for 39% of NSCLCs and is the most common bronchial carcinoma associated with asbestos and is more common in non-smokers, compared with other cell types.</i></p> <p><i>It is also important to note that hoarseness can also be a feature of lung cancer.</i></p>
50.	<p>A 50 year old woman returned by air to the UK from Australia. 3 days later, she presents with a sharp chest pain and breathlessness. Her chest X-ray and ECG are normal. What is the SINGLE most appropriate investigation?</p> <p>A. Bronchoscopy B. Cardiac enzymes C. CT pulmonary angiogram (CTPA) D. MRI E. Pulse oximetry</p> <p>Prolonged plane journey is a recognized risk factor for thromboembolism and hence pulmonary embolism as well. Sharp chest pain and breathlessness after 3 days of plane journey is highly suggestive of pulmonary embolism. CTPA is the answer here as it is the best test among the other options which provide a definitive diagnosis of pulmonary embolism.</p>



Two-level PE Wells score

Clinical feature	Points
Clinical signs and symptoms of DVT (minimum of leg swelling and pain with palpation of the deep veins)	3
An alternative diagnosis is less likely than PE	3
Heart rate > 100 beats per minute	1.5
Immobilisation for more than 3 days or surgery in the previous 4 weeks	1.5
Previous DVT/PE	1.5
Haemoptysis	1
Malignancy (on treatment, treated in the last 6 months, or palliative)	1

Clinical

probability simplified scores

- PE likely - more than 4 points
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More than 4 points → Arrange an immediate computed tomography pulmonary angiogram (CTPA)

4 points or less → Arrange a D-dimer test. If this is positive arrange an immediate computed tomography pulmonary angiogram (CTPA)

If anytime there is a delay in getting the CTPA → Give low-molecular weight heparin until the scan is performed

If the patient has an allergy to contrast media or renal impairment → A V/Q scan should be used instead of a CTPA

Occasionally, questions will have a question with a patient with typical signs and symptoms of pulmonary embolism and options of a CTPA and V/Q scans would be in the mix. Which one would you perform?

- *Pick the CTPA over the V/Q scans*

The consensus view from the British Thoracic Society and NICE guidelines is as follows:

- *Computed tomographic pulmonary angiography (CTPA) is now the recommended initial lung-imaging modality for non-massive PE. Advantages compared to V/Q scans include speed, easier to perform out-of-hours, a reduced need for further imaging and the possibility of providing an alternative diagnosis if PE is excluded*
- *If the CTPA is negative then patients do not need further investigations or treatment for PE*

Also note that you should pick the CTPA over V/Q scans even if the patient is pregnant.

The RCOG guidelines for Thromboembolic Disease in Pregnancy and the Puerperium clearly state that:

- *When the chest X-ray is abnormal and there is a clinical suspicion of PE, CTPA should be performed in preference to a V/Q scan. [New 2015]*



51. A 20 year old man presents to A&E after having severe injuries from a road traffic accident. On presentation he is breathless and has severe chest pain. A Chest X-ray shows fractures of the 5th to 7th rib. His systolic blood pressure is 85 bpm, respiratory rate is 25 breaths/min and his pulse rate is 110/min What is the SINGLE most appropriate initial action?

- A. Antibiotics
- B. Analgesia
- C. High flow oxygen**
- D. Secure venous access
- E. Refer to surgeon

Another very debatable question. The diagnosis here is flail chest.

In this question, the examiners want you to know the basics of life-threatening emergencies. ABC - airway, breathing, circulation should always be addressed first.

In reality, oxygen by mask, securing venous access and analgesia would all be done simultaneously. But for the purpose of this exam, we should know the steps according to NHS guidelines and British references. Thus, securing airways and giving oxygen would come before anything else.

Remember ABC!

Flail chest

Fractures of ≥ 3 ribs in 2 places allows part of the chest wall to move independently. This ?ail segment usually indicates signi?cant injury to the underlying lung (typically pulmonary contusions)

Presentation

The ?ail segment causes pain and moves paradoxically compared with the rest of the chest wall, limiting the effectiveness of respiration. There may be associated features of respiratory distress (cyanosis, tachypnoea).

Diagnosis

The diagnosis is a clinical one, but it can be dif?cult to make. Look tangentially at the chest for areas which move paradoxically (ie inwards during inspiration and outwards during expiration)

Assessment of the extent of respiratory compromise is largely clinical but aided by a few simple investigations:

- SpO₂ on pulse oximetry
- ABG would show a combination of hypoxia and respiratory acidosis
- Chest X-ray will demonstrate fractures and associated injuries



	<p>Treatment</p> <ul style="list-style-type: none">- Provide high flow O₂ and treat associated life-threatening problems- Contact the ICU/anaesthesia team and carefully consider the need for immediate or urgent tracheal intubation with IPPV- Analgesic pain medications are a common treatment for flail chest. Opioid pain medications in high doses can produce respiratory depression, especially in the elderly, although they can be helpful at lesser doses
52.	<p>A 20 year old man suddenly develops shortness of breath over the last day. It started when he was playing football. The shortness of breath was associated with right sided pleuritic chest pain. On examination, reduced air entry with hyper-resonance was noted over the right lung field. His oxygen saturation was 91% on room air. What is the SINGLE most likely diagnosis?</p> <p>A. Asthma B. Spontaneous pneumothorax C. Tension pneumothorax D. Sarcoidosis E. Chronic obstructive pulmonary disease (COPD)</p> <p>Dyspnoea and chest pain in a young man are features of primary spontaneous pneumothorax. This occurs when a subpleural bullous ruptures.</p> <p>One of the major differences between spontaneous pneumothorax from tension pneumothorax is that the patient does not have a deviated trachea away from the affected side.</p> <p>Primary pneumothorax Primary spontaneous pneumothoraces occur most commonly in tall thin men aged between 20 and 40. They usually occur in the healthy.</p> <p>Cigarette is a major risk factor for pneumothorax. The mechanism is unclear; a smoking-induced influx of inflammatory cells may both break down elastic lung fibres (causing bulla formation) and cause small airways obstruction (increasing alveolar pressure and the likelihood of interstitial air leak)</p> <ul style="list-style-type: none">- More common on the right side- Less than 10% of cases are bilateral- Usually caused by rupture of small subpleural blebs (collections of air < 2cm) <p>Presentation</p> <ul style="list-style-type: none">- Dyspnoea, chest pain, cough, tachypnoea- Ipsilateral decreased chest wall movement, hyperresonant hemithorax to percussion



53. A 21 year old man has exercised induced asthma and is using a salbutamol inhaler as required and beclomethasone inhaler 400 mcg/day. He complains of wheeze and shortness of breath during exercise despite using salbutamol inhaler just before exercise. What is the SINGLE most appropriate action?

- A. Add on tiotropium
- B. Take regular salbutamol and add on budesonide inhaler
- C. Add on sodium cromoglycate**
- D. Add on oral steroid
- E. Increase Inhaled steroid

Sodium cromoglycate can be added for exercise-induced asthma.

Exercise-induced asthma

Exercise-induced asthma although following the stepwise approach has a slight difference in management.

For most patients, exercise-induced asthma is an illustration of poorly controlled asthma and regular treatment including inhaled corticosteroids should therefore be reviewed. If exercise is a specific problem in patients already taking inhaled corticosteroids who are otherwise well controlled, consider adding either:

leukotriene receptor antagonist

a long-acting beta 2 agonist

an oral beta 2 agonist

sodium cromoglycate

theophylline

An inhaled short-acting beta2 agonists used immediately before exercise is the drug of choice.

Source: <http://patient.info/doctor/bronchial-asthma> and BNF

Asthma - Management of stable asthma in adults

Asthma is characterised by paroxysmal and reversible obstruction of the airways.

Management of stable asthma in adults:

The management of stable asthma is now well established with a stepwise approach:

Step 1

Inhaled short-acting B2 agonist as required

Step 2

Add inhaled steroid at 200-800 mcg/day. 400 mcg/day is a appropriate starting dose for many patients



Step 3

Add inhaled long-acting B2 agonist (LABA)

Then assess control of asthma:

- If good response to LABA, then continue LABA
- If benefit from LABA but control still inadequate then continue LABA and increase inhaled corticosteroid dose to 800 micrograms/day
- If no response to LABA, stop LABA and increase inhaled corticosteroid to 800 micrograms/day. And If control still inadequate, institute trial of other therapies, leukotriene receptor antagonist or SR theophylline

Step 4

Consider trials of:

- increasing inhaled steroid up to 2000 mcg/day
- addition of a fourth drug e.g. Leukotriene receptor antagonist, SR theophylline, B2 agonist tablet

Step 5

- Use daily steroid tablets

Referral to a respiratory physician would be normal at Step 4-5 depending on expertise.

If you find this stepwise approach too complicated to memorize. Then just memorize it in a very simplified way as stated below:

Step 1 → Inhaled short-acting B2 agonist

Step 2 → Add inhaled steroid

Step 3 → Add inhaled long-acting B2 agonist (LABA)

Step 4 → increasing inhaled steroid to max dose

Step 5 → Add daily steroid tablets

Note:

NICE now recommends omalizumab as an option for treating severe persistent confirmed allergic IgE-mediated asthma as an add-on to optimised standard therapy in people aged 6 years and older who need continuous or frequent treatment with oral corticosteroids. However this is so new that it is unlikely to be asked in PLAB

- 54.** A 60 year old lady is on treatment for ischaemic heart disease, hypertension and hyperlipidaemia. During the night, she complains of wheezing and shortness of breath. What is the SINGLE most likely medication that is responsible for her symptoms?
- A. Amlodipine
B. Atenolol
C. Ramipril
D. Simvastatin
E. Bendroflumethiazide



	<p>Symptoms of asthma may present after taking aspirin, NSAIDS or beta-blockers. Atenolol is the only beta blocker on the list.</p>
55.	<p>A 15 year old boy presents to the Emergency Department with a sudden onset of chest pain and increasing shortness of breath during a beach volleyball game. He has a medical history of asthma and is on a beta-2 agonist inhaler. On examination, there is no cyanosis but there are reduced breath sounds on the left side. Which of the following is the SINGLE most appropriate investigation?</p> <p>A. D-dimer B. CT chest C. Chest x-ray D. Peak flow meter E. Spirometry</p> <p>This is a diagnosis of spontaneous pneumothorax. Key clues for PLAB 1: young male playing a sport develops sudden shortness of breath. There usually would be clues “decreased breath sounds on one side”. Sometimes they may say a “tall” man or an “athlete”, as these would be the common presenters of spontaneous pneumothorax.</p> <p>Primary spontaneous pneumothoraces occur most commonly in tall thin men aged between 20 and 40.</p> <p>Cigarette is a major risk factor for pneumothorax. The mechanism is unclear; a smoking-induced influx of inflammatory cells may both break down elastic lung fibres (causing bulla formation) and cause small airways obstruction (increasing alveolar pressure and the likelihood of interstitial air leak)</p> <p>Chest X-ray is the diagnostic test in most cases, revealing a visible lung edge and absent lung markings peripherally.</p> <p>If patient is cyanosed, dyspneic, underlying lung disease – perform arterial blood gas</p>
56.	<p>An 8 year old boy diagnosed with asthma is on salbutamol inhaler and beclomethasone inhaler. However, he wakes up at night with wheezing and shortness of breath. What is the SINGLE most appropriate management?</p> <p>A. Add inhaled long-acting B2 agonist (LABA) B. Increase inhaled corticosteroid dose C. Aminophylline D. Oral prednisolone E. Sodium cromoglycate</p> <p>Asthma - Management of stable asthma in children aged 5 - 12 Asthma is characterised by paroxysmal and reversible obstruction of the airways.</p>



Management of stable asthma in children aged 5 - 12:

The management of stable asthma is now well established with a stepwise approach:

Step 1

Inhaled short-acting B2 agonist as required

Step 2

Add inhaled steroid at 200-400 mcg/day. 200 mcg/day is a appropriate starting dose for many patients

Step 3

Add inhaled long-acting B2 agonist (LABA)

Then assess control of asthma:

- If good response to LABA, then continue LABA
- If benefit from LABA but control still inadequate then continue LABA and increase inhaled corticosteroid dose to 400 micrograms/day
- If no response to LABA, stop LABA and increase inhaled corticosteroid to 400 micrograms/day. And If control still inadequate, institute trial of other therapies, leukotriene receptor antagonist or SR theophylline

Step 4

Consider trials of:

- increasing inhaled steroid up to 800 mcg/day

Step 5

- Use daily steroid tablets

Referral to a respiratory physician would be normal at Step 4-5 depending on expertise.

If you find this stepwise approach too complicated to memorize. Then just memorize it in a very simplified way as stated below:

Step 1 → Inhaled short-acting B2 agonist

Step 2 → Add inhaled steroid

Step 3 → Add inhaled long-acting B2 agonist (LABA)

Step 4 → increasing inhaled steroid to max dose

Step 5 → Add daily steroid tablets



57.	<p>A 35 year old lady had an emergency C-section following an obstructed labour. Three days post-op she develops a sudden onset of left sided chest pain associated with breathlessness. Her heart rate is 105 bpm. Her left leg is swollen and is pain on palpation. What is the SINGLE best investigation to provide a definitive diagnosis?</p> <p>A. Arterial blood gases B. Chest X-ray C. CT pulmonary angiogram (CTPA) D. D-dimer E. Electrocardiogram (ECG)</p> <p>CTPA is the answer here as it is the best test among the other options which provide a definitive diagnosis of pulmonary embolism.</p>
58.	<p>A 48 year old farmer presents with malaise, dry cough, chest tightness and shortness of breath. The shortness of breath and cough started only a few hours ago. On auscultation, a wheeze is heard throughout the chest. He has a temperature of 39.2°C, a pulse of 96 beats/minute, a blood pressure of 110/70 mmHg and a respiratory rate of 29 breaths/minute. His chest X-ray shows diffuse micronodular interstitial shadowing. What is the SINGLE most appropriate diagnosis?</p> <p>A. Pulmonary embolism B. Churg-strauss syndrome C. Cryptogenic organizing pneumonia D. Extrinsic allergic alveolitis E. Progressive massive fibrosis</p> <p>The signs and symptoms fit extrinsic allergic alveolitis. The occupation as a farmer is also another hint.</p> <p>Chest X ray: in the acute form may be normal in some or show diffuse micronodular interstitial shadowing like in this case.</p> <p>Extrinsic allergic alveolitis</p> <p>In extrinsic allergic alveolitis there is diffuse, granulomatous inflammation of the lung parenchyma and airways in people who have been sensitised by repeated inhalation of organic antigens in dusts (eg, from dairy or grain products, animal dander and protein and water reservoir vapourisers)</p> <p>One of the specific risk factors is occupations including farmers, cattle workers, ventilation system workers, vets, people working with grain and flour, those whose job involves working with chemicals</p> <p>There are 3 forms of extrinsic allergic alveolitis:</p> <p>1. Acute</p>



	<p>2. Subacute 3. Chronic</p> <p><i>The most commonly asked form in PLAB is the acute form and so we would only discuss the acute form of extrinsic allergic alveolitis</i></p> <p>Acute form</p> <ul style="list-style-type: none">- Symptoms usually start 4-8 hours after exposure to the sensitising antigen and resolve quickly, usually within days.- There is a flu-like illness with fever, chest tightness, dry cough and dyspnoea. Associated symptoms include malaise, chills, headache, generalised aches and pains. Wheeze is sometimes present.- Signs include fever, tachypnoea and bibasal fine inspiratory crackles
59.	<p>A 35 year old man presents with progressive breathlessness. He has a history of polyarthralgia with painful red lumps appearing on his shins. They are cherry sized and are about 20 or more in number. His chest X-ray shows bilateral hilar lymphadenopathy. What is the SINGLE most likely diagnosis?</p> <p>A. Bronchial asthma B. Cystic fibrosis C. Sarcoidosis D. Bronchiectasis E. Pneumonia</p> <p>In PLAB, whenever you see the term “bilateral hilar lymphadenopathy” with a rash on the shin, you should be thinking of Sarcoidosis.</p> <p>The syndrome here is Lofgren syndrome which includes erythema nodosum, arthritis, and hilar adenopathy. Lofgren is a distinct sarcoid syndrome</p> <p>Sarcoidosis</p> <p>Sarcoidosis is a systemic disease of unknown cause, characterized histologically by the presence of nonspecific noncaseating granulomas in the lung and other organs.</p> <p>Features</p> <p>Sarcoidosis can involve almost any organ system, but pulmonary involvement is most common.</p> <ul style="list-style-type: none">- acute: erythema nodosum, bilateral hilar lymphadenopathy, fever, polyarthralgia- insidious: dyspnoea, non-productive cough, malaise, weight loss- skin: lupus pernio- Hypercalcemia due to increased circulation of vitamin D produced by macrophages. <p>Commonly, sarcoidosis is discovered in a completely asymptomatic patient, usually in the form of hilar adenopathy on a chest x-ray.</p>



There are two distinct sarcoid syndromes with acute presentation:

- Lofgren syndrome includes erythema nodosum, arthritis, and hilar adenopathy.
- Heerfordt- Waldenstrom syndrome, which describes fever, parotid enlargement, uveitis, and facial palsy

Lung involvement in sarcoidosis occurs in 90% of patients sometime in their course.

Chest X-Ray.

Shows bilateral hilar adenopathy,

Laboratory Findings.

Elevation in angiotensin-converting enzyme (ACE) can be seen in 60% of patients with sarcoidosis. But note that ACE should not be used to diagnose sarcoidosis. ACE levels are nonspecific but can be used to follow the course of the disease.

Abnormalities in liver function tests are seen in 30% of patients

PFTs may be normal or show a restrictive pattern.

Diagnosis.

The definitive diagnosis of sarcoidosis rests on biopsy of suspected tissues, which show noncaseating granulomas.

Treatment

Generally in the setting of organ impairment, a trial of steroids may be used. There are certain scenarios in which steroids should be used but are beyond what will be asked in PLAB.

- 60.** A 33 year old man is brought into the emergency department following a road traffic accident. He is seen to be very short of breath. He has no breath sounds over the right side of his chest. On percussion, the right chest is noted to be hyper-resonant. On examination, his trachea is deviated to the left. His heart rate is 120 beats/minute. His blood pressure is 90/65 mmHg, and has an oxygen saturation of 85% on 15L of oxygen. What is the SINGLE most appropriate course of action?
- A. Arterial blood gas
 - B. Urgent chest X-ray
 - C. Needle decompression**
 - D. Urgent computed tomography scan of chest
 - E. Insertion of a chest drain



This man has rapidly developed the signs of a pneumothorax. Having just had a needle inserted into his chest, this is almost certainly an iatrogenic pneumothorax. The deviation of the trachea suggests that it is under tension and so needs urgent reversal. This is done by introducing a cannula into the pleural space, usually in the second anterior intercostal space mid-clavicular line. Air should be removed until the patient is no longer compromised and then an intercostal tube can be inserted into the pleural space.

The other less appropriate answers:

Investigations like ABG and chest X-ray → should be deferred as this is a serious situation that would lead to cardiorespiratory arrest unless addressed.

Insertion of a chest drain → will be needed but not until the air has been removed.

Insertion of a cannula into the left second intercostal space → Clearly a wrong answer as the trachea is deviated towards the left. This means that the tension pneumothorax is on the right.

Tension Pneumothorax

Presentation

- Acute respiratory distress
- Hypotension
- Raised jugular venous pressure
- Tracheal deviation away from the pneumothorax side
- Reduced air entry on affected side

Management of a tension pneumothorax

If strong clinical suspicion, give high-flow oxygen and insert large-bore cannula into second intercostal space in midclavicular line on side of pneumothorax.

- Do not wait for a chest X-ray if patient seriously compromised or cardiac arrest has occurred or if the diagnosis is clinically certain
- Hiss of escaping air confirms diagnosis
- Air should be aspirated until the patient is less distressed. Then insert a chest drain in mid-axillary line, leaving the cannula in place until you have finished and the underwater seal is bubbling satisfactorily

Comparing simple and tension pneumothorax

Simple Pneumothorax		Tension Pneumothorax	
Trachea	Upside Down T	Trachea	Arrow East
Expansion	Down Arrow	Expansion	Down Arrow
Percussion Note	Up Arrow	Percussion Note	Up Arrow
Breath sounds	Down Arrow	Breath sounds	Down Arrow
		Neck Veins	Up Arrow



61. A 32 year old previously healthy woman has developed pain and swelling on both knees and ankles with a nodular rash over her shins. As part of the investigation a chest X-ray was performed. What is the SINGLE most likely appearance on the chest X-ray?

- A. Apical granuloma
- B. Bilateral hilar lymphadenopathy**
- C. Lobar consolidation
- D. Pleural effusion
- E. Reticular shadowing in the bases

A very commonly asked topic on PLAB → Sarcoidosis

The questions would usually provide 2 out of the 3 important clinical features of Lofgren syndrome and ask for the third feature. Lofgren syndrome includes:

1. Erythema nodosum
2. Arthritis
3. Bilateral hilar lymphadenopathy.

Thus if you see any 2 of the 3 features stated above, the first thought should be Lofgren (a distinct sarcoid syndrome)

Sarcoidosis

Sarcoidosis is a systemic disease of unknown cause, characterized histologically by the presence of nonspecific noncaseating granulomas in the lung and other organs.

Features

Sarcoidosis can involve almost any organ system, but pulmonary involvement is most common.

- acute: erythema nodosum, bilateral hilar lymphadenopathy, fever, polyarthralgia
- insidious: dyspnoea, non-productive cough, malaise, weight loss
- skin: lupus pernio
- Hypercalcemia due to increased circulation of vitamin D produced by macrophages.

Commonly, sarcoidosis is discovered in a completely asymptomatic patient, usually in the form of hilar adenopathy on a chest x-ray.

There are two distinct sarcoid syndromes with acute presentation:

- Lofgren syndrome includes erythema nodosum, arthritis, and hilar adenopathy.
- Heerfordt- Waldenstrom syndrome, which describes fever, parotid enlargement, uveitis, and facial palsy

Lung involvement in sarcoidosis occurs in 90% of patients sometime in their course.



	<p>Chest X-Ray.</p> <p>Shows bilateral hilar adenopathy,</p> <p>Laboratory Findings.</p> <p>Elevation in angiotensin-converting enzyme (ACE) can be seen in 60% of patients with sarcoidosis. But note that ACE should not be used to diagnose sarcoidosis. ACE levels are nonspecific but can be used to follow the course of the disease.</p> <p>Abnormalities in liver function tests are seen in 30% of patients</p> <p>PFTs may be normal or show a restrictive pattern.</p> <p>Diagnosis.</p> <p>The definitive diagnosis of sarcoidosis rests on biopsy of suspected tissues, which show noncaseating granulomas.</p> <p>Treatment</p> <p>Generally in the setting of organ impairment, a trial of steroids may be used. There are certain scenarios in which steroids should be used but are beyond what will be asked in PLAB.</p>
62.	<p>A 21 year old lady who smokes has a history of wheezing, chest tightness and coughing at night. She also notices these symptoms occur when she goes out in the cold and breathes cold air. What is the SINGLE most likely diagnosis?</p> <p>A. COPD B. Asthma C. Pneumoconiosis D. Bronchiectasis E. Chronic bronchitis</p> <p>Asthma - Risk factors, presentation and diagnosis</p> <p>Asthma is characterised by paroxysmal and reversible obstruction of the airways.</p> <p>It is a clinical diagnosis based on:</p> <ul style="list-style-type: none">- A history of recurrent episodes of wheeze, chest tightness, breathlessness, and/or cough, particularly at night- Evidence of generalized and variable airflow obstruction, which may be detected as intermittent wheeze on examination or via tests such as peak expiratory flow (PEF) measurement <p>Acute asthma involves:</p> <ul style="list-style-type: none">- Bronchospasm (smooth muscle spasm narrowing airways)



- Excessive production of secretions (plugging airways)

Risk factors

Asthma is due to a combination of genetic and environmental factors

- Personal history of atopy
- Family history of asthma or atopy
- Inner city environment; socio-economic deprivation
- Prematurity and low birth weight
- Viral infections in early childhood
- Smoking
- Maternal smoking

Presentation

- Cough
- SOB
- Wheeze
- Chest tightness.

Classically, these are variable, intermittent, worse at night and in early morning, and are associated with specific triggers

Triggers include

- Pollens
- cat and dog dander
- cold air
- perfumes

Note: Symptoms may present after taking aspirin or beta-blockers

Examination:

- May be entirely normal

In a mild attack

- Slight tachypnoea, tachycardia
- Classically, expiratory wheeze is heard (widespread wheeze)

In a severe life-threatening attacks

- Use of accessory muscles of respiration
- Diminished breath sounds, loud wheezing, hyper-resonance (increased vocal fremitus) and intercostal retraction
- The chest may appear hyperinflated
- Sometimes, in severe life-threatening asthma, there may have no wheeze at all and a silent chest



In long standing/poorly controlled asthma

- Chest deformity/hyperinflation may be seen

Diagnosis:

This is often a clinical diagnosis but should be supported by objective measurements.

The diagnosis is based on the presence of:

- Symptoms (cough, wheeze, breathlessness)
- PFTs show an obstructive pattern that typically reverses with bronchodilation
- Day-to-day peak flow variability
- Otherwise unexplained low forced expiratory volume in one second (FEV1) or peak expiratory flow (historical or serial readings)
- Otherwise unexplained peripheral blood eosinophilia

Where diagnosis is uncertain (intermediate probability) but with demonstration of airway obstruction (FEV1/forced vital capacity (FVC) <0.7), reversibility testing and/or a trial of treatment are suggested.

Chest x-ray findings are nonspecific in an asthmatic attack. It should not be used routinely in the assessment of asthma but consider CXR in any patient presenting with an atypical history or with atypical findings on examination. CXR if atypical symptoms, may show hyperinflation. The chest x-ray may be helpful in ruling out acute infection as the cause of an acute attack.

Asthma VS COPD

One differential diagnosis that is worth mentioning is COPD.

- Reversibility distinguishes asthma from COPD
- COPD is rarely totally refractory to medication.
- Almost all patients with COPD do smoke or have smoked in the past. Asthmatics can also develop COPD.

- 63.** A 46 year old man is being treated for a pleural effusion. A chest drain has been sited just below the 4th rib in the mid-axillary line on his right side. What SINGLE structure is at particular risk of injury?

- A. Azygos vein
- B. Diaphragm
- C. Intercostal artery**
- D. Internal thoracic artery
- E. Liver

Chest drain Insertion technique

Chest insertion should be performed ideally within "safe triangle"

'Safe triangle' for chest drain insertion, bounded anteriorly by pectoralis major, posteriorly by latissimus dorsi, inferiorly by the fifth intercostal space, and superiorly by the axilla.



	<p>By inserting at the safe triangle, we avoid major vessels and muscles</p> <p>It is important to note that the intercostal vessels and nerves run below the inferior border of the ribs. Thus, the drain track should be directed over the top of the lower rib to avoid the intercostal vessels lying below each rib.</p>
64.	<p>A 54 year old smoker man presents with progressive dyspnoea. He complains of cough, wheeze and a table spoonful of mucopurulent sputum which he coughs out daily for the last 15 months. A spirometry was performed. His FEV1/FVC is 2.4/3.7. After taking salbutamol, the spirometry was performed again which gave a ratio of 2.5/3.8. What is the SINGLE most likely diagnosis?</p> <p>A. Chronic bronchitis B. Asthma C. Bronchiectasis D. Lung fibrosis E. Sarcoidosis</p> <p>He has clear signs of chronic bronchitis. The spirometry is important to perform as it shows that there is irreversible airflow obstruction on spirometry. A FEV1/FVC < 0.7 post-bronchodilator points towards the direction of COPD. The minimal bronchodilator reversibility (< 5%) helps diagnose COPD and it is also useful if there is diagnostic uncertainty for example, if the patient is thought to have both COPD and asthma.</p> <p>Chronic bronchitis</p> <ul style="list-style-type: none">- Defined as a productive cough that lasts for three months or more per year for at least two years <p><i>Note that COPD is now the preferred term for patients with airflow obstruction who were previously diagnosed as having chronic bronchitis or emphysema</i></p> <p>Presentation</p> <ul style="list-style-type: none">- Cough accompanied by sputum production- Dyspnoea- Low-grade fever (but patients are most commonly afebrile)- Wheezing <p>Aetiology</p> <ul style="list-style-type: none">- Smoking <p>Investigations</p> <ul style="list-style-type: none">- Pulmonary function test<ul style="list-style-type: none">o Decreased FEV1 and FEV1/FVC ratioo FEV1/FVC < 0.7 (post-bronchodilator)- Chest X-ray



	<ul style="list-style-type: none">○ <i>is not required for diagnosis but is important to rule out other diagnoses that are being considered e.g. lung cancer, bronchiectasis</i>○ Hyperinflated lung fields○ Attenuation of peripheral vasculature○ Flattened diaphragms <p>Remember diagnosis of COPD → is based on the history of smoking and progressive dyspnoea, with evidence of irreversible airflow obstruction on spirometry</p>
65.	<p>A 68 year old smoker has left sided chest pain which worsens when taking deep breaths. His medical history includes diabetes mellitus and hypertension. On examination, he has a miotic left eye and partial ptosis on the left. There is also wasting of small muscles of the left hand. What is the SINGLE most likely diagnosis?</p> <p>A. Costochondritis B. Lung cancer C. Goodpasture's syndrome D. Motor neuron disease E. Progressive massive fibrosis</p> <p>The likely diagnosis here is a pancoast tumour which is a type of lung cancer defined primarily by its location situated at the top end of the right or left lung. In this case, it would be the left lung. This would explain the chest pain firstly and also the miosis and ptosis which are part of Horner's syndrome.</p> <p>Pancoast tumour</p> <ul style="list-style-type: none">- A tumour of the pulmonary apex- It is a type of lung cancer defined primarily by its location situated at the top end of either the right or left lung <p>Presentation</p> <ul style="list-style-type: none">- Ipsilateral invasion of the cervical sympathetic plexus leads to Horner's syndrome (ptosis, anhidrosis, miosis)- Brachial plexus invasion can lead to wasting of the intrinsic hand muscles and paraesthesiae in the medial side of the arm along with shoulder and arm pain <p><i>Mnemonic for Horner's syndrome → "Horny PAMELA"</i> <i>P → Ptosis (drooping of the eyelid)</i> <i>A → Anhidrosis (lack of sweating)</i> <i>M → Miosis (constriction of the pupils)</i> <i>E → Enophthalmos (sunken eyeball)</i></p>



66.	<p>A 2 year old girl presents with a 4 day history of fever which started with a cough. She has a respiratory rate of 45 beats/minute, oxygen saturation of 94% and a temperature of 38.9C. There are crepitations at the left base on auscultation of the lung fields. Urine dipstick was found to be negative. What is the SINGLE investigations most likely to lead to diagnosis?</p> <p>A. Blood culture and sensitivity B. Erythrocyte sedimentation rate (ESR) C. Chest X-ray D. Urine for Culture and sensitivity E. Cerebrospinal fluid analysis</p> <p>This is an extremely straight forward question. The features are consistent with respiratory tract infection (possibly pneumonia) for which a chest X-ray is the investigation of choice.</p>
67.	<p>A 23 year old woman who is on several medications and inhalers for her asthma presents to the hospital with palpitations. Her heart rate is 110 beats/minute. Her peak expiratory flow rate is 400 L/minute. What is the SINGLE most appropriate management?</p> <p>A. Lifestyle changes B. Review medications C. 24 hour ECG monitoring D. Admit for investigations E. Chest X-ray</p> <p>One of the common side effects of beta agonist is palpitations and tachycardia. Both of which are seen here. Reviewing the medications would be appropriate.</p>
68.	<p>A 58 year old man who used to work in the shipyard industry was having chronic cough and shortness of breath for several months. He was given salbutamol nebulisers and intravenous antibiotics and admitted to the ward. A computed tomography was performed which showed patchy infiltrates, pleural thickening and pleural effusion. He died 3 days later after which this case was referred to the coroner. What is the SINGLE most likely reason for the referral to the coroner?</p> <p>A. Incorrect diagnosis and management B. Inpatient death in the wards C. Death likely due to industrial disease D. Cancer research purposes E. Death by natural causes</p> <p>This patient's symptoms were due to the pleural effusion secondary to mesothelioma. Mesothelioma is classed as an industrial disease. In England and Wales, all deaths from mesothelioma must be referred to the local coroner's office. The coroner will then decide if a post-mortem examination is required and will hold an inquest. An inquest is a legal investigation to establish the circumstances surrounding a person's death. An inquest is needed because mesothelioma is an occupational disease and one needs to determine whether the death was due to mesothelioma or some other cause.</p>



Mesothelioma

Malignant mesothelioma is a tumour of mesothelial cells that usually occurs in the pleura, and rarely in the peritoneum or other organs. It is associated with occupational exposure to asbestos

The latent period between exposure and development of the tumour may be up to 45 years. Compensation is often available.

Clinical features:

- Chest pain
- Dyspnoea
- Weight loss
- Finger clubbing
- Recurrent pleural effusions

Remember: Shortness of breath, chest pain and weight loss are the most common symptoms

Signs of metastases:

- Lymphadenopathy
- Hepatomegaly
- Bone pain or tenderness
- Abdominal pain or obstruction (peritoneal malignant mesothelioma)

Tests:

- CXR or CT will show pleural thickening or effusion

Diagnosis is made on histology, usually following a thoracoscopy. Thoracoscopy under local anaesthetic enables drainage of pleural fluid, pleural biopsy and pleurodesis.

Often the diagnosis is only made post-mortem.

Management:

Is usually symptomatic, as cure is usually only possible with surgery for extremely localised (stage I) mesothelioma. The role and order of adjuvant or neoadjuvant use of chemotherapy, radiotherapy and surgery has still not been established although chemotherapy has been shown can improve survival. Surgery is hard to evaluate as there are too few randomized trials. Radiotherapy is controversial. Pleurodesis and indwelling intra-pleural drain may help



69. A 79 year old man with longstanding chronic obstructive pulmonary disease has become progressively breathless over the last 2 years. His medications for his COPD include salbutamol and salmeterol inhalers, inhaled corticosteroids and theophylline. His forced expiratory volume in one second (FEV1) is less than 30%. His oxygen saturations are 89% on room air. What is the next appropriate management?

- A. Assessment for lung transplant
- B. Trial of continuous positive airway pressure
- C. Trial of noninvasive ventilation
- D. Assessment for long term oxygen therapy**
- E. Assessment for a short course of oxygen therapy

COPD is the disease for which long-term oxygen therapy (LTOT) is most commonly prescribed. There is strong evidence of survival benefit of long-term oxygen therapy (LTOT) in patients with COPD and severe chronic hypoxaemia when used for at least 15 hours daily. Once LTOT is started, it is likely to be lifelong. It is usually given over a minimum of 15 hours a day.

When do you assess the need for oxygen therapy?

- Very severe airflow obstruction → forced expiratory volume in one second (FEV1) less than 30% predicted
- Polycythaemia
- Oxygen saturation 92% or less on room air

Conditions for assessment for LTOT

- Needs to be stable and more than 5 weeks have passed since any exacerbation of COPD
- On a fully optimized treatment for COPD
- 2 sets of ABG are taken 3 weeks apart to ensure the patient is sufficiently hypoxic

When to offer LTOT to patients?

- pO₂ of < 7.3 kPa or
- pO₂ of 7.3 - 8 kPa and one of the following:
 - Secondary polycythaemia
 - Nocturnal hypoxaemia
 - Peripheral oedema
 - Pulmonary hypertension



70. A 27 year old man presents with chest pain and respiratory distress following a road traffic accident. On examination, his neck veins are noted to be distended and trachea is deviated to the left. Breath sounds are absent on the left and diminished on the right lung field. He has a blood pressure of 80/40 mmHg and a heart rate of 120 beats/minute. What is the SINGLE most appropriate next action?

- A. Chest X-ray
- B. Insertion of a cannula into the right second intercostal space**
- C. Insertion of a cannula into the left second intercostal space
- D. Insertion of a chest drain into right mid-axillary line
- E. Insertion of a chest drain into left mid-axillary line

The features described is diagnostic of right sided tension pneumothorax.

Tension Pneumothorax

Presentation

- Acute respiratory distress
- Hypotension
- Raised jugular venous pressure
- Tracheal deviation away from the pneumothorax side
- Reduced air entry on affected side

Management of a tension pneumothorax

If strong clinical suspicion, give high-flow oxygen and insert large-bore cannula into second intercostal space in midclavicular line on side of pneumothorax.

- Do not wait for a chest X-ray if patient seriously compromised or cardiac arrest has occurred or if the diagnosis is clinically certain
- Hiss of escaping air confirms diagnosis
- Air should be aspirated until the patient is less distressed. Then insert a chest drain in mid-axillary line, leaving the cannula in place until you have finished and the underwater seal is bubbling satisfactorily



71. A 67 year old smoker presents with cough, breathlessness and wheeze. 24% oxygen by Venturi face mask was initiated and nebulized salbutamol and hydrocortisone were administered. As his dyspnoea did not improve, intravenous aminophylline was administered and an arterial blood gas was sent. He has a respiratory rate of 32 breaths/minute. His arterial blood gas results show:

pH 7.32
pCO₂ 7.7 kPa
pO₂ 10.1 kPa

What is the SINGLE most appropriate next step in management?

A. Non-invasive ventilation

- B. Invasive mechanical ventilation
- C. Long-acting beta-adrenoceptor agonist
- D. Intravenous doxapram hydrochloride
- E. Oral amoxicillin

This question is testing your knowledge on the management of acute exacerbation of COPD. The reason that this is likely COPD instead of asthma is because of his age, the fact that he is a smoker, and the choice of administering 24% of oxygen rather than 100% oxygen. 24% of oxygen gives the clue that he is on controlled O₂ therapy with the attempt to maintain saturations between 88% and 92% to balance hypoxia, hypercapnia and pH which is seen as part of the management for COPD.

Non-invasive ventilation would be the next step in management as it is particularly effective in supporting patients during an exacerbation especially when maximal medical treatment has not been effective like in this case. Its use is appropriate for conscious patients with ongoing respiratory acidosis (< pH 7.35).

Note that oral antibiotics should ONLY be given if there is purulent sputum or clinical signs of pneumonia. While it is common practice for all patients with an exacerbation of COPD to receive antibiotics in the hospital, it is not according to NICE guidelines and for the purpose of this exam, antibiotics should not be administered to manage acute exacerbation COPD unless we suspect pneumonia.

The reason why invasive mechanical ventilation is an inappropriate answer is that it has its own complications such as pneumonia, barotrauma, and failure to wean to spontaneous ventilation. Thus, it should not be used unless non-invasive ventilation fails or is contraindicated such as in scenarios like respiratory arrest, high aspiration risk, or impaired mental status.

Doxapram is also an incorrect answer. Doxapram is a respiratory stimulant. It is given intravenously and can be used to drive respiratory rate if respiratory rate was less than 20 breaths/minute. In this case, the respiratory rate is 32 breaths/minute hence there is no



	<p>problem with the respiratory drive. Its use has largely been replaced by non-invasive ventilation.</p> <p>Management of acute exacerbation of COPD</p> <ul style="list-style-type: none">- Antibiotics if sputum is purulent or clinical signs of pneumonia- Prednisolone 30mg/day for 7-14 days- Inhaled or nebulized bronchodilators- Controlled O2 therapy 24% via Venturi face mask, with oximetry → Maintain saturations between 88% and 92%- IV aminophylline → Beneficial if the patient is wheezy and has not improved with nebulizers alone- Non-invasive ventilation → Effective in supporting patients during an exacerbation when maximal medical treatment has not been shown to be effective
72.	<p>A 48 year old presents with increasing shortness of breath over the last few months and a dry cough. He has worked in coal mines for 18 years. Chest x-ray and CT scan of the chest demonstrates characteristic upper zone mass-like scarring with calcification and volume loss. The lung opacifications are seen to be associated with radiating strands. What is the SINGLE most likely diagnosis?</p> <p>A. Churg-strauss syndrome B. Cryptogenic organizing C. Extrinsic allergic alveolitis D. Goodpasture's syndrome E. Progressive massive fibrosis</p> <p>The first step to recognition of the answer is to understand that with a history of working in coal mines this is likely Coal worker's pneumoconiosis. Progressive massive fibrosis refers to the formation of large conglomerate masses of dense fibrosis, predominantly in the upper pulmonary lobes. These classically develop in the context of certain pneumoconioses (especially Coal worker's pneumoconiosis and silicosis).</p>



73. A 48 year old man was admitted with cough and dyspnoea. He has a long history of smoking and has lost 8 kg in the past 5 months. A chest X-ray was performed and showed consolidation on the lower left lobe. He was started on antibiotics and is due for discharge. What is the SINGLE most appropriate follow up investigations to perform after discharge?

- A. Bronchoscopy
- B. Chest X-ray**
- C. Sputum culture
- D. Computed tomography (CT)
- E. Magnetic resonance imaging (MRI)

A chest X-ray should be performed after he recovers. As he is a smoker and has lost significant weight, lung malignancy should be part of the differential. The first chest X-ray shows consolidation of the left lower lobe which is consistent with pneumonia. A repeat chest X-ray would be required to assess malignancy as the consolidation on the left lower lobe could have hindered a proper assessment of lung carcinoma.

SAMPLE



SAMPLE



RHEUMATOLOGY

SAMPLE



1. A 45 year old man with severe pain and redness at the metatarsophalangeal joint of his right big toe comes to the Emergency Department. He has never suffered from any form of arthritis before. He has hypertension and was recently started on bendroflumethiazide by his GP. What is the SINGLE most appropriate management?

- A. Paracetamol
- B. Allopurinol
- C. Methotrexate
- D. NSAIDS**
- E. Flucloxacillin

The diagnosis here is gout. NSAIDS are given for acute attacks.

Gout

Gout is a disease that affects middle-aged men and presents most commonly with acute monoarthritis.

The metatarsophalangeal joint of the first toe is commonly affected (podagra), but other joints like the knee, ankle, PIPs, or DIPs may be initially involved. The first episode commonly occurs at night with severe joint pain waking the patient from sleep. The joint rapidly becomes warm, red, and tender (it looks exactly like cellulitis). Without treatment the joint pain goes away spontaneously in 2 weeks.

Certain events that precipitate gout sometimes precede the attack. Question writers very commonly give a scenario where a person has consumed excessive amounts of alcohol or started taking diuretics such as thiazide diuretics or furosemide.

Diagnosis

The serum uric acid during the acute attack may be normal or low. Remember this it is common that questions ask for the diagnostic method for acute gout. And serum uric acid should never be the answer for those questions. The serum uric acid level is of no value in the diagnosis of acute urate arthropathy. This is why the diagnosis is made by the analysis of synovial fluid.

Treatment:

Acute management

- NSAIDs
- intra-articular steroid injection
- Colchicine

Chronic hypouricemic therapy:

- Allopurinol should not be started until 2 weeks after an acute attack has settled as it may precipitate a further attack if started too early
- NSAID or colchicine cover should be used when starting allopurinol



2. A 78 year old woman presents with unilateral headache and pain on chewing. Her ESR is 70 mm/hour. She is on oral steroids. What is the SINGLE most appropriate additional treatment?

A. Bisphosphonates

- B. Hormone replacement therapy
- C. ACE inhibitors
- D. Beta blockers
- E. Timolol

The elderly lady with giant cell arteritis is getting high dose steroid which can lead to demineralization and osteopenia or osteoporosis. So to prevent this bisphosphonates are given.

The diagnosis here is clear. She has temporal arteritis. In these situations, question writers always ask which medication could be added onto the current regimen. There are two things that one can think of.

Bisphosphonates are important and can be considered to add on to reduce the risk of osteoporosis. Especially in an elderly females.

Low dose aspirin is increasingly being recommended for people with a history of giant cell arteritis. It has been found to decrease the rate of visual loss and strokes in patients with GCA.

As low dose aspirin is not in the given options, bisphosphonates is your pick.

TA (Temporal Arteritis)

TA (Temporal Arteritis), also known as giant cell arteritis, is a vasculitis affecting the large arteries that supply the head, eyes, and optic nerves. New-onset headache in any patient older than 50 years prompts consideration of this diagnosis, which if left untreated may result in permanent vision loss.

The most common symptoms of giant cell arteritis are headache and pain that usually occurs in one or both temples. Other common symptoms include: scalp tenderness (pain when combing hair, jaw claudication (jaw pain when chewing), decreased vision or blurry vision, tongue numbness, or, rarely, sudden loss of vision. Sometimes the patient may have proximal stiffness (neck, arms, and hips) due to polymyalgia rheumatica, a coexisting condition with TA.

The erythrocyte sedimentation test (ESR) is the first test to do in patients suspected to have TA.

The diagnosis is always confirmed by biopsy of the temporal arteries in which the characteristic giant cells are demonstrated. In the patient whom you suspect to have TA, if the ESR is elevated, corticosteroids should be started immediately, before the temporal artery biopsy is performed.



	Occasionally they may ask which medication can be added onto corticosteroids for treatment of GCA. Add on low-dose aspirin. Aspirin 75 mg daily has been shown to decrease the rate of visual loss and strokes in patients with GCA.
3.	<p>A 52 year old woman with a history of systemic lupus erythematosus complains of dry eyes and altered sense of taste. Her voice becomes hoarse when she speaks for long periods of time. What is the SINGLE most likely diagnosis?</p> <p>A. Acquired Angioedema B. Sjogren's syndrome C. Herpes zoster ophthalmicus D. Sarcoidosis E. Scleroderma</p> <p>Sjogren's syndrome</p> <p>Sjogren's syndrome is an autoimmune disorder affecting exocrine glands resulting in dry mucosal surfaces. Sjogren syndrome may be seen alone (primary) or in association with other autoimmune diseases (secondary) such as rheumatoid arthritis, primary biliary cirrhosis, or systemic lupus erythematosus.</p> <p>As Sjogren's syndrome progresses, it becomes a systemic disease involving major organs (lungs, kidneys, etc.) and may eventually evolve into a lymphoproliferative disease - malignant Lymphoma.</p> <p>Note that sjogren's syndrome is much more common in females (ratio 9:1)</p> <p>Features</p> <p><i>dry eyes: keratoconjunctivitis sicca</i></p> <ul style="list-style-type: none">- Patients complain of itchy eyes, sandy feeling under their eyes (because of decreased lacrimal production) <p><i>dry mouth</i></p> <ul style="list-style-type: none">- Patients may complain of difficulty swallowing food <p><i>vaginal dryness</i></p> <p><i>parotid enlargement</i></p> <ul style="list-style-type: none">- Bilateral enlargement of the parotid glands <p>Investigation</p> <ul style="list-style-type: none">- Schirmer's test will show decreased tear production- rose Bengal stain will document corneal ulcerations- ANAs will be positive and specifically anti-Ro (SSA) and anti-La (SSB)- rheumatoid factor (RF) positive in nearly 100% of patients <p>Management</p>



	There is no cure for sjogren's syndrome. Artificial tears may help with the dry eyes.
4.	<p>A 76 year old who is on medication for hypertension comes to clinic suffering from pain and redness at the metatarsophalangeal joint of his right first toe. Which of the following antihypertensive medication is like most likely to have caused his symptoms?</p> <p>A. Losartan B. Bendroflumethiazide C. Ramipril D. Bisoprolol E. Verapamil</p> <p>The diagnosis here is acute gout which is precipitated by bendroflumethiazide.</p> <p>Gout Gout is a disease that affects middle-aged men and presents most commonly with acute monoarthritis.</p> <p>The metatarsophalangeal joint of the first toe is commonly affected (podagra), but other joints like the knee, ankle, PIPs, or DIPs may be initially involved. The first episode commonly occurs at night with severe joint pain waking the patient from sleep. The joint rapidly becomes warm, red, and tender (it looks exactly like cellulitis). Without treatment the joint pain goes away spontaneously in 2 weeks.</p> <p>Certain events that precipitate gout sometimes precede the attack. Question writers very commonly give a scenario where a person has consumed excessive amounts of alcohol or started taking diuretics such as thiazide diuretics or furosemide.</p> <p>Diagnosis The serum uric acid during the acute attack may be normal or low. Remember this it is common that questions ask for the diagnostic method for acute gout. And serum uric acid should never be the answer for those questions. The serum uric acid level is of no value in the diagnosis of acute urate arthropathy. This is why the diagnosis is made by the analysis of synovial fluid.</p> <p>Treatment: Acute management</p> <ul style="list-style-type: none">- NSAIDs- intra-articular steroid injection- Colchicine <p>Chronic hypouricemic therapy:</p> <ul style="list-style-type: none">- Allopurinol should not be started until 2 weeks after an acute attack has settled as it may precipitate a further attack if started too early- NSAID or colchicine cover should be used when starting allopurinol



5. A 44 year old woman complains of a sandy feeling under her eyes that has been present for the last year. She also says that she has difficulty swallowing. On examination, bilateral enlargement of the parotid glands were noted. What is the SINGLE most likely diagnosis?

- A. C1 esterase deficiency
- B. Systemic lupus erythematosus
- C. Mumps
- D. Sarcoidosis
- E. Sjogren's syndrome**

Sjogren's syndrome

Sjogren's syndrome is an autoimmune disorder affecting exocrine glands resulting in dry mucosal surfaces. Sjogren syndrome may be seen alone (primary) or in association with other autoimmune diseases (secondary) such as rheumatoid arthritis, primary biliary cirrhosis, or systemic lupus erythematosus.

As Sjogren's syndrome progresses, it becomes a systemic disease involving major organs (lungs, kidneys, etc.) and may eventually evolve into a lymphoproliferative disease - malignant Lymphoma.

Note that sjogren's syndrome is much more common in females (ratio 9:1)

Features

dry eyes: keratoconjunctivitis sicca

- Patients complain of itchy eyes, sandy feeling under their eyes (because of decreased lacrimal production)

dry mouth

- Patients may complain of difficulty swallowing food

vaginal dryness

parotid enlargement

- Bilateral enlargement of the parotid glands

Investigation

- Schirmer's test will show decreased tear production
- rose Bengal stain will document corneal ulcerations
- ANAs will be positive and specifically anti-Ro (SSA) and anti-La (SSB)
- rheumatoid factor (RF) positive in nearly 100% of patients

Management

There is no cure for sjogren's syndrome. Artificial tears may help with the dry eyes.



6.	<p>A 45 year old woman complains of pain in her hands precipitated by exposure to the cold weather. She also has breathlessness on walking. When she eats, she can feel food sticking to her throat. She finds it difficult to swallow. It is usually relieved with a drink of water. What is the SINGLE most likely cause of her dysphagia?</p> <p>A. Oesophageal carcinoma B. Systemic sclerosis C. Systemic Lupus Erythematosus D. Pharyngeal carcinoma E. Globus hystericus</p> <p>Diagnosis is quite clear here. Systemic sclerosis may present with pain in hands when exposed to cold (Raynaud's phenomena), shortness of breath (pulmonary fibrosis), and dysphagia (oesophageal dysmotility).</p> <p>Systemic sclerosis Is one of the causes of dysphagia.</p> <p>Other features of CREST syndrome may be present, namely Calcinosis, Raynaud's phenomenon, Oesophageal dysmotility, Sclerodactyly, Telangiectasia</p> <p>As well as oesophageal dysmotility the lower oesophageal sphincter (LES) pressure is decreased. This contrasts to achalasia where the LES pressure is increased</p>
7.	<p>A 65 year old man has a generalized rash, fever, joint pain, and muscle pain. His medical history is significant for a late onset asthma associated with nasal polyps. He recently has been diagnosed with heart failure. Eosinophilia was shown on his last blood test. A chest X-ray shows fleeting peripheral pulmonary infiltrates and bilateral multifocal consolidations. What is the SINGLE most likely positive antibody?</p> <p>A. p-ANCA B. c-ANCA C. Anti Ro D. Anti DSDNA E. Anti-centromere</p> <p>The diagnosis here is Churg-Strauss Syndrome. 30-40% of patients are perinuclear staining (p-ANCA) positive.</p> <p>Churg-Strauss Syndrome</p> <p>A rare diffuse vasculitic disease affecting coronary, pulmonary, cerebral, abdominal visceral and skin circulations. The vasculitis affects small- and medium-sized arteries and veins and is associated with asthma. The cardinal manifestations of Churg-Strauss syndrome are asthma, eosinophilia, and lung involvement.</p>



The incidence of Churg-Strauss Syndrome is rare thus it is also rarely asked in PLAB. However, one might see this topic every now and then.

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The American College of Rheumatology has identified six criteria for the diagnosis of Churg-Strauss Syndrome

- Asthma (wheezing, expiratory rhonchi)
- Eosinophilia of more than 10% in peripheral blood
- Paranasal sinusitis
- Pulmonary infiltrates (may be transient)
- Histological confirmation of vasculitis with extravascular eosinophils
- Mononeuritis multiplex or polyneuropathy

The presence of four out of six of these features has a high specificity and sensitivity for the diagnosis of Churg-Strauss Syndrome

Presentation

The most prominent symptoms and signs include:

- Pulmonary: asthma
- Upper respiratory tract: allergic rhinitis, paranasal sinusitis, nasal polyposis.
- Cardiac involvement is common. This includes heart failure, myocarditis and myocardial infarction
- Skin: purpura, skin nodules
- Renal: glomerulonephritis
- Peripheral neuropathy: mononeuritis multiplex is the most frequent form

Investigations

- Antineutrophil cytoplasmic antibodies (ANCA): 30-40% of patients are perinuclear staining (p-ANCA) positive (antimyeloperoxidase antibodies)
- Eosinophilia and anaemia on the FBC
- Elevated ESR and CRP
- Elevated serum creatinine
- Increased serum IgE levels
- CXR: pulmonary opacities, transient pulmonary infiltrates, and bilateral multifocal consolidation
- High-resolution CT: Ground-glass attenuation
- Biopsy: small necrotising granulomas, as well as necrotising vasculitis (found especially in the lung)



8. A 32 year old woman has had a febrile illness and sudden onset of pain and swelling of the small joints of her feet and knees for the past two days. She has a maculopapular rash on her soles of her feet. She was previously well. There is no history of relevant travel outside the UK. On examination, conjunctivitis is noted. What is the SINGLE most likely diagnosis?

- A. Septic Arthritis
- B. Reactive Arthritis**
- C. Rheumatoid Arthritis
- D. Psoriatic Arthritis
- E. Systemic Lupus Erythematosus

Reactive arthritis is caused when a joint reacts to an infection elsewhere in the body. The infection which triggers reactive arthritis is not actually in the joint itself. Most often, these bacteria are in the genitals (*Chlamydia trachomatis*) or the bowel (*Campylobacter*, *Salmonella*, *Shigella* and *Yersinia*).

Unlike septic arthritis, fever is not a typical feature of reactive arthritis as it is not caused by an active infection although it is seen in some cases.

It is important to note that the initial infection may be so mild that it goes unnoticed by the patient like in this case where there was no report of any gastrointestinal or urogenital infection.

The skin rashes on the soles of the feet (sometimes on the palms of the hands) are called keratoderma blennorrhagicum and are similar to psoriasis. They often begin as clear vesicles on a red base and progress to macules (flat lesions), papules (raised lesions), and nodules (firm bumps). They are commonly seen as an additional feature of reactive arthritis. The appearance is usually of a vesico-pustular waxy lesion with a yellow brown colour

Reactive arthritis

- A form of seronegative spondyloarthritis clinically associated with back pain, migratory oligoarthritis and extra-articular symptoms that typically follow a gastrointestinal or urogenital infection

Presentation:

- Develops 2-4 weeks after a an initial infection which may have been sexually acquired or gastrointestinal in origin
- An asymmetrical, predominantly lower extremity, oligoarthritis is the major presenting symptom (usually knees and ankles)
- Skin (circinate balanitis, keratoderma blennorrhagicum, erythema nodosum)
- The complete Reiter's triad of urethritis, conjunctivitis, and arthritis may occur

Remember these points:

- *Joints*
 - *Arthritis (oligoarthritis of lower limbs)*
- *Eyes*



	<ul style="list-style-type: none">○ <i>Conjunctivitis (seen in 50%)</i>○ <i>Anterior uveitis</i>- <i>Skin</i><ul style="list-style-type: none">○ <i>Circinate balanitis which are painless vesicles on the coronal margin of the prepuce</i>○ <i>Keratoderma blennorrhagica which are waxy yellow/brown maculopapular rash seen on palms and soles</i>○ <i>Erythema nodosum which are tender red nodules on the shins</i>- <i>Urethritis</i> <p>Mnemonic: "Can't see, can't pee, can't climb a tree."</p> <ul style="list-style-type: none">- <i>Can't see – Conjunctivitis</i>- <i>Can't pee – Urethritis</i>- <i>Can't climb a tree – Arthritis</i>
9.	<p>A 59 year old male is in the CCU (Cardiac Care Unit). He suffered from a myocardial infarction 2 days ago which is now complicated by cardiac failure. He has now developed sudden onset of pain, redness and swelling of his right knee joint. What is the SINGLE best method for confirming the diagnosis of his swollen knee joint?</p> <p>A. Send joint aspirate for culture B. Send joint aspirate for microscopy C. Serum uric acid levels D. Blood culture E. Erythrocyte sedimentation rate (ESR)</p> <p>SAFETY</p> <p>This is a multi-step question. Let's break it down:</p> <ul style="list-style-type: none">- This man has had a myocardial infarction- He is now suffering from heart failure- He is also suffering from a red, swollen knee joint <p>By mentioning that this man has heart failure, they are alluding to the fact that he was probably put on a diuretic during his stay in hospital.</p> <p>Loop diuretics (such as Furosemide) are used first-line for cardiac failure. A thiazide diuretic may be added to a loop diuretic in the case of severe cardiac failure. We do not know what type of diuretic this man has been put on but it is highly probable that he was put on a thiazide diuretic.</p> <p>In order to diagnose gout, we MUST do a joint aspirate. Since there was no mention of this man having a fever, there is no need to do a joint aspirate culture. Joint microscopy would be ideal since we would be able to visualise the MSU crystals of gout.</p> <p>You may sometimes see a raised serum uric acid level in acute gout, however not all people suffering from gout demonstrate raised serum uric acid levels and this is not an accurate test to diagnose the condition.</p>



	<p>Keep in mind that when the stem says “single best method for confirming the diagnosis”, it is always a biopsy (or the equivalent of an invasive diagnostic test).</p> <p>Thiazide Diuretics</p> <p>Most common types of thiazide diuretics in use: bendroflumethiazide, chlorthalidone, cyclopenthiiazide, indapamide, metolazone, and xipamide</p> <p>Common or serious possible side-effects include:</p> <ul style="list-style-type: none">- Hyperglycaemia- Increase in uric acid levels- Hypokalaemia, hyponatraemia, hypomagnesaemia, hypercalcaemia.- Other problems, such as:<ul style="list-style-type: none">o GI upseto Postural hypotensiono Impotenceo Skin sensitivity to sunlight
10.	<p>A 48 year old woman with a history of rheumatoid arthritis complains of dry eyes. A Schirmer's test shows decreased tear production. And a rose Bengal stain documents corneal ulcerations. What is the SINGLE most likely diagnosis?</p> <p>A. Acquired Angioedema B. Systemic lupus erythematosus C. Herpes zoster ophthalmicus D. Sarcoidosis E. Sjogren's syndrome</p>
11.	<p>A 61 year old man who suffers from rheumatoid arthritis is complaining of severe pain in the joints of his hands, feet and knees. His medical history includes having had a stroke 2 years ago in which he takes aspirin for. He also takes senna daily to manage his ongoing constipation. What is the SINGLE most appropriate medication to manage his pain?</p> <p>A. Methotrexate B. Ibuprofen C. Co-codamol D. Paracetamol E. Hydroxychloroquine</p>



12.	<p>A 55 year old man has numbness in hands and feet. His medical history is significant for a asthma associated with nasal polyps and facial pain. Eosinophilia was shown on his last blood test. A pulmonary CT scan shows ground-glass inflammation. What is the SINGLE most likely diagnosis?</p> <p>A. Churg-Strauss Syndrome B. Temporal arteritis C. Polyarteritis Nodosa D. Wegener granulomatosis E. Inflammatory myopathies</p> <p>The diagnosis here is Churg-Strauss Syndrome. The incidence of Churg-Strauss Syndrome is rare thus it is also rarely asked in PLAB. However, one might see this topic every now and then.</p>
13.	<p>A 62 year old lady has a right sided headache and blurry vision. She says it started of being with tenderness at her scalp when combing her hair. ESR came back elevated. What is the SINGLE most appropriate management?</p> <p>A. Prednisolone B. Temporal artery biopsy C. CT head D. IV acetazolamide E. Measurement of intraocular pressure</p> <p>Prednisolone should be started when you suspect temporal arteritis if ESR is elevated. Do not wait till you get a temporal artery biopsy.</p> <p>TA (Temporal Arteritis) TA (Temporal Arteritis), also known as giant cell arteritis, is a vasculitis affecting the large arteries that supply the head, eyes, and optic nerves. New-onset headache in any patient older than 50 years prompts consideration of this diagnosis, which if left untreated may result in permanent vision loss.</p> <p>The most common symptoms of giant cell arteritis are headache and pain that usually occurs in one or both temples. Other common symptoms include: scalp tenderness (pain when combing hair, jaw claudication (jaw pain when chewing), decreased vision or blurry vision, tongue numbness, or, rarely, sudden loss of vision. Sometimes the patient may have proximal stiffness (neck, arms, hips) due to polymyalgia rheumatica, a coexisting condition with TA.</p> <p>The erythrocyte sedimentation test (ESR) is the first test to do in patients suspected to have TA.</p> <p>The diagnosis is always confirmed by biopsy of the temporal arteries in which the</p>



	<p>characteristic giant cells are demonstrated. In the patient whom you suspect to have TA, if the ESR is elevated, corticosteroids should be started immediately, before the temporal artery biopsy is performed.</p>
14.	<p>A 30 year old man presents with wheezing intermittently over the past few weeks. Eosinophilia was shown on his last blood test. His blood test show the presence of p-ANCA antibodies. What is the SINGLE most likely diagnosis?</p> <p>A. Churg-Strauss Syndrome B. Sarcoidosis C. Polyarteritis Nodosa D. Pleural effusion E. Tuberculosis</p> <p>The diagnosis here is Churg-Strauss Syndrome. The incidence of Churg-Strauss Syndrome is rare thus it is also rarely asked in PLAB. However, one might see this topic every now and then.</p>
15.	<p>A 62 year old lady presents with right sided headache and decreased, blurry vision. She also has pain around her jaw especially when chewing. What is the SINGLE most appropriate initial investigation?</p> <p>A. ESR B. Temporal artery biopsy C. CT head D. X-ray orbit E. Measurement of intraocular pressure</p> <p>Temporal arteritis (TA) is the suspected diagnosis here. Erythrocyte sedimentation test (ESR) is the first test to do in patients suspected to have TA. Since the question ask for the most appropriate “initial” investigation, the answer would be ESR. If the question had asked for the most appropriate “definitive” investigation, the temporal artery biopsy would be the answer.</p> <p>TA (Temporal Arteritis), also known as giant cell arteritis, is a vasculitis affecting the large arteries that supply the head, eyes, and optic nerves. New-onset headache in any patient older than 50 years prompts consideration of this diagnosis, which if left untreated may result in permanent vision loss.</p> <p>The most common symptoms of giant cell arteritis are headache and pain that usually occurs in one or both temples. Other common symptoms include: scalp tenderness (pain when combing hair, jaw claudication (jaw pain when chewing), decreased vision or blurry vision, tongue numbness, or, rarely, sudden loss of vision. Sometimes the patient may have proximal stiffness (neck, arms, hips) due to polymyalgia rheumatica, a coexisting condition with TA.</p>



	<p>The erythrocyte sedimentation test (ESR) is the first test to do in patients suspected to have TA.</p> <p>The diagnosis is always confirmed by biopsy of the temporal arteries in which the characteristic giant cells are demonstrated. In the patient whom you suspect to have TA, if the ESR is elevated, corticosteroids should</p>
16.	<p>A 59 year old man has right sided headache and decreased, blurry vision. He also has pain around her jaw especially when chewing. ESR was shown to be elevated. Corticosteroids have been started. What is the SINGLE most appropriate medication to be added?</p> <p>A. ACE inhibitors B. Beta blockers C. Aspirin D. NSAIDS E. Timolol</p> <p>Low dose aspirin is increasingly being recommended for people with a history of giant cell arteritis. It has been found to decrease the rate of visual loss and strokes in patients with GCA.be started immediately, before the temporal artery biopsy is performed.</p> <p>TA (Temporal Arteritis) TA (Temporal Arteritis), also known as giant cell arteritis, is a vasculitis affecting the large arteries that supply the head, eyes, and optic nerves. New-onset headache in any patient older than 50 years prompts consideration of this diagnosis, which if left untreated may result in permanent vision loss.</p> <p>The most common symptoms of giant cell arteritis are headache and pain that usually occurs in one or both temples. Other common symptoms include: scalp tenderness (pain when combing hair, jaw claudication (jaw pain when chewing), decreased vision or blurry vision, tongue numbness, or, rarely, sudden loss of vision. Sometimes the patient may have proximal stiffness (neck, arms, hips) due to polymyalgia rheumatica, a coexisting condition with TA.</p> <p>The erythrocyte sedimentation test (ESR) is the first test to do in patients suspected to have TA.</p> <p>The diagnosis is always confirmed by biopsy of the temporal arteries in which the characteristic giant cells are demonstrated. In the patient whom you suspect to have TA, if the ESR is elevated, corticosteroids should be started immediately, before the temporal artery biopsy is performed.</p> <p>Occasionally they may ask which medication can be added onto corticosteroids for treatment of GCA. Add on low-dose aspirin. Aspirin 75 mg daily has been shown to decrease the rate of visual loss and strokes in patients with GCA.</p>



17.	<p>A 27 year old female complains of intermittent pain in her fingers usually brought about in cold weather. She describes episodes of numbness and burning of the fingers. Her fingers usually become very pale if she does not wear gloves when going outdoors. What is the SINGLE most likely diagnosis?</p> <p>A. Kawasaki disease B. Takayasu arteritis C. Buerger's disease D. Embolism E. Raynaud's phenomenon</p> <p>Raynaud's phenomenon is defined as episodes of pallor or cyanosis in response to cold or emotional stimuli.</p> <p>Fingers or toes ache and change colour:</p> <p>pale (ischaemia) blue (deoxygenation) red (reactive hyperaemia)</p> <p>The pallor is caused by vasoconstriction of blood vessels (arteries and arterioles) that results in reduced blood flow, while cyanosis is created by deoxygenation of slow-flowing blood. After rewarming the hands, the blood will rebound (hyperemia) and the skin will appear reddened or blushed.</p> <p>It is common for patients with Raynaud's phenomenon to complain of cold sensitivity and to have other areas of the skin involved, including the ears, nose, and lower extremities. Episodes come as sudden attacks and are most often triggered by rapid changes in ambient temperature. Attacks may begin in one or two fingers but typically involve all fingers and/ or toes symmetrically and bilaterally.</p> <p>Primary Raynaud's phenomenon (Raynaud's disease) denotes a patient without an associated underlying disease. Secondary Raynaud's phenomenon is used to describe patients with a defined secondary or associated disease (scleroderma).</p>
18.	<p>A 27 year old man has recurrent lower back pain and stiffness. The pain is worse in the morning and improves when he exercises. He finds it difficult to bend his back. He has no history of trauma to his back. What is the SINGLE most appropriate investigation to perform?</p> <p>A. Erythrocyte sedimentation rate (ESR) B. X-ray of sacroiliac joints C. HLA B27 D. X-ray of thoracic spine E. Computed tomography of lumbar spine</p>



	<p>Ankylosing spondylitis</p> <ul style="list-style-type: none">- A HLA-B27 associated spondyloarthropathy which primarily involves the axial skeleton (ie sacroiliitis and spondylitis) <p>Features</p> <ul style="list-style-type: none">- Young man (usually before age 30) presenting with lower back pain and stiffness- Stiffness which is worse in the morning and improves with exercise- A strong association with HLA-B27 exists- There is often tenderness of the sacroiliac joints or a limited range of spinal motion. <p>Examination</p> <p>Schober's test → This is a line is drawn 10 cm above and 5 cm below the back dimples (dimples of Venus). The distance between the two lines should increase by more than 5 cm when the patient bends as far forward as possible</p> <p>Other important features</p> <ul style="list-style-type: none">- Anterior uveitis → presents with an acutely painful red eye and severe photophobia- Aortic regurgitation <p>Investigations</p> <ul style="list-style-type: none">- Plain x-ray of the sacroiliac joints → This is the most useful investigation. It would show evidence of sacroiliitis which is the earliest finding. Later findings once there is significant chronic spine inflammation include a “bamboo spine” and squaring of the vertebral bodies. <p>Do not use HLA-B27 to make the diagnosis as it is also positive in 10% of normal patients.</p> <p>Management:</p> <p>First line → NSAIDS</p> <p>Second line → Anti-TNF therapy</p>
19.	<p>A 61 year old woman with a medical history of diabetes and rheumatoid arthritis presents with left knee pain which has been worsening over the last 24 hours. She has fever and rigors. On examination, there is decreased range of movement and the left knee joint is red and oedematous. Septic arthritis is suspected. What is the SINGLE most common organism responsible for septic arthritis?</p> <p>A. Neisseria gonorrhoeae B. Staphylococcus epidermidis C. Escherichia coli D. Proteus mirabilis E. Staphylococcus aureus</p> <p>Septic arthritis</p> <p>The two most common organisms that cause septic arthritis are:</p> <ul style="list-style-type: none">- Staphylococcus aureus → Most common pathogen for septic arthritis overall



	<ul style="list-style-type: none">- <i>Neisseria gonorrhoeae</i> → Seen in young, sexually active adults <p>Most cases of septic arthritis are due to haematogenous spread during transient bacteraemia but can also be introduced by a skin lesion that penetrates the joint or by local spread from a contiguous infected site.</p> <p>Risk factors</p> <ul style="list-style-type: none">- Prior joint damage (rheumatoid arthritis, gout, osteoarthritis) <i>It is particularly important to remember rheumatoid arthritis as a risk factor as it is commonly asked</i>- Immunodeficiency states (HIV, corticosteroid use)- Diabetes <p>Presentation</p> <ul style="list-style-type: none">- Single swollen, red joint with pain on active or passive movement- Fevers and rigors <p>Remember this triad of fever, pain and impaired range of motion</p> <p>Investigations</p> <ul style="list-style-type: none">- Aspiration of synovial fluid → Sent for gram staining, leukocyte count, microscopy and culture- Blood cultures → Remember most cases of septic arthritis are due to haematogenous spread <p>Management</p> <ul style="list-style-type: none">- Flucloxacillin for 4 to 6 weeks- If penicillin-allergic → Use clindamycin- If gonococcal arthritis → Use cefotaxime or ceftriaxone- If infection not responding to antibiotics → Perform repeated percutaneous aspiration <p>In general, intravenous antibiotics are used for 7 days until the swelling subsides and blood cultures become negative. This is followed by a 4 week course of oral antibiotics.</p>
20.	<p>A 69 year old woman with a medical history of rheumatoid arthritis for 25 years presents with left shoulder pain and swelling for 3 days. She has a low grade fever. On examination, there is decreased range of motion of the left shoulder joint and movement elicits pain. She takes regular low dose steroids for the past year to manage her flare of rheumatoid arthritis. She has no known drug allergies. Joint aspiration has been sent for microscopy and culture. What is the SINGLE most appropriate management?</p> <p>A. Wait for results of culture prior to starting antibiotic therapy B. Intravenous flucloxacillin C. Oral flucloxacillin D. Intravenous clindamycin E. Perform repeated percutaneous aspiration</p>



The presentation is in line with septic arthritis where rheumatoid arthritis is a risk factor for. The most important diagnostic test in patients presenting with acute arthritis is examination of the synovial fluid which was performed in this stem.

Empirical treatment should be started in septic arthritis before results of the culture are obtained. Intravenous flucloxacillin 1 to 2 g every 6 hours is the most common antibiotic to start with.

Septic arthritis

The two most common organisms that cause septic arthritis are:

- Staphylococcus aureus → Most common pathogen for septic arthritis overall
- Neisseria gonorrhoeae → Seen in young, sexually active adults

Most cases of septic arthritis are due to haematogenous spread during transient bacteraemia but can also be introduced by a skin lesion that penetrates the joint or by local spread from a contiguous infected site.

Risk factors

- Prior joint damage (rheumatoid arthritis, gout, osteoarthritis)
It is particularly important to remember rheumatoid arthritis as a risk factor as it is commonly asked
- Immunodeficiency states (HIV, corticosteroid use)
- Diabetes

Presentation

- Single swollen, red joint with pain on active or passive movement
- Fevers and rigors

Remember this triad of fever, pain and impaired range of motion

Investigations

- Aspiration of synovial fluid → Sent for gram staining, leukocyte count, microscopy and culture
- Blood cultures → Remember most cases of septic arthritis are due to haematogenous spread

Management

- Flucloxacillin for 4 to 6 weeks
- If penicillin-allergic → Use clindamycin
- If gonococcal arthritis → Use cefotaxime or ceftriaxone
- If infection not responding to antibiotics → Perform repeated percutaneous aspiration

In general, intravenous antibiotics are used for 7 days until the swelling subsides and blood cultures become negative. This is followed by a 4 week course of oral antibiotics.



21.	<p>A 55 year old lady with a medical history of hypertension and rheumatoid arthritis presents with an acutely hot, swollen, and tender right knee joint. There is pain on movement and there is decreased passive and active range of motion. What is the SINGLE most appropriate investigation to perform?</p> <p>A. X-ray of right knee joint B. Culture and sensitivity of joint aspirate C. Ultrasound D. Magnetic resonance imaging E. Computed tomography</p> <p>The presentation is in line with septic arthritis where rheumatoid arthritis is a risk factor for. The most important diagnostic test in patients presenting with acute arthritis is examination of the synovial fluid.</p> <p>Plain X-rays in early disease are unhelpful, since they show only soft tissue swelling. In later untreated septic arthritis, joint space narrowing and erosion will be seen. But they are not diagnostic for septic arthritis.</p> <p>Ultrasound is not as sensitive as MRI or CT scan however it is inexpensive and can show early joint effusions and help guide joint aspiration and drainage procedures.</p> <p>CT and MRI scanning are sensitive methods for diagnosing periarticular abscesses and joint effusions but their use is reserved for cases of diagnostic difficulty usually involving sacroiliac or sternoclavicular joint infection where extensions into the pelvis or mediastinum is a possibility.</p> <p>Remember that although ultrasound, CT and MRI scans may aid the diagnosis, the diagnosis of septic arthritis is made on the basis of aspiration.</p> <p>Septic arthritis</p> <p>The two most common organisms that cause septic arthritis are:</p> <ul style="list-style-type: none">- Staphylococcus aureus → Most common pathogen for septic arthritis overall- Neisseria gonorrhoeae → Seen in young, sexually active adults <p>Most cases of septic arthritis are due to haematogenous spread during transient bacteraemia but can also be introduced by a skin lesion that penetrates the joint or by local spread from a contiguous infected site.</p> <p>Risk factors</p> <ul style="list-style-type: none">- Prior joint damage (rheumatoid arthritis, gout, osteoarthritis) <i>It is particularly important to remember rheumatoid arthritis as a risk factor as it is commonly asked</i>- Immunodeficiency states (HIV, corticosteroid use)- Diabetes
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	<p>Presentation</p> <ul style="list-style-type: none">- Single swollen, red joint with pain on active or passive movement- Fevers and rigors <p>Remember this triad of fever, pain and impaired range of motion</p> <p>Investigations</p> <ul style="list-style-type: none">- Aspiration of synovial fluid → Sent for gram staining, leukocyte count, microscopy and culture- Blood cultures → Remember most cases of septic arthritis are due to haematogenous spread <p>Management</p> <ul style="list-style-type: none">- Flucloxacillin for 4 to 6 weeks- If penicillin-allergic → Use clindamycin- If gonococcal arthritis → Use cefotaxime or ceftriaxone- If infection not responding to antibiotics → Perform repeated percutaneous aspiration <p>In general, intravenous antibiotics are used for 7 days until the swelling subsides and blood cultures become negative. This is followed by a 4 week course of oral antibiotics.</p>
22.	<p>A 60 year old man presented with a spontaneous painful swelling of his right knee which appears hot and very tender on touching. The swelling became worse over the last few days. About a week ago, he had an inguinal hernia repaired as a day case. His regular medications include Ramipril 10mg daily, Bendroflumethiazide 2.5mg daily and Glyceryl trinitrate tablets when required. He is afebrile on examination. What is the SINGLE best method for confirming the diagnosis?</p> <p>A. Joint aspirate for microscopy B. Blood culture C. D-dimer D. X-ray of knee E. Serum uric acid levels</p> <p>Bendroflumethiazide is a thiazide diuretic which is well known to cause symptomatic hyperuricemia which can precipitate an acute attack of gout. Other common thiazides diuretics to be aware of include Indapamide, Chlorthalidone and Metolazone.</p> <p>Although a raised serum uric acid level is an important risk factor for gout, the use of serum uric acid as a diagnostic test is limited. It can be normal during acute gout. On the other hand, patients with hyperuricaemia may never develop an attack.</p> <p>In summary, you may sometimes see a raised serum uric acid level in acute gout, however not all people suffering from gout demonstrate raised serum uric acid levels and this is not an</p>



accurate test to diagnose the condition. Joint microscopy would be ideal since we would be able to visualise the MSU crystals of gout.

Gout

Gout is a disease that affects middle-aged men and presents most commonly with acute monoarthritis.

The metatarsophalangeal joint of the first toe is commonly affected (podagra), but other joints like the knee, ankle, PIPs, or DIPs may be initially involved. The first episode commonly occurs at night with severe joint pain waking the patient from sleep. The joint rapidly becomes warm, red, and tender (it looks exactly like cellulitis). Without treatment the joint pain goes away spontaneously in 2 weeks.

Certain events that precipitate gout sometimes precede the attack. Question writers very commonly give a scenario where a person has consumed excessive amounts of alcohol or started taking diuretics such as thiazide diuretics or furosemide.

Diagnosis

The serum uric acid during the acute attack may be normal or low. Remember this it is common that questions ask for the diagnostic method for acute gout. And serum uric acid should never be the answer for those questions. The serum uric acid level is of no value in the diagnosis of acute urate arthropathy. This is why the diagnosis is made by the analysis of synovial fluid.

Treatment:

Acute management

- NSAIDs
- intra-articular steroid injection
- Colchicine

Chronic hypouricemic therapy:

- Allopurinol should not be started until 2 weeks after an acute attack has settled as it may precipitate a further attack if started too early
- NSAID or colchicine cover should be used when starting allopurinol



23. A 63 year old man presents with muscle weakness. He finds it difficult to walk for long periods of time or climb stairs. Activities such as rising from a seated position is difficult. He also finds difficulty in swallowing foods. His blood results show:

Alkaline phosphatase (ALP) 149 U/L
Aspartate transaminase (AST) 37 U/L
Alanine transferase (ALT) 44 U/L
Creatine kinase 440 U/L
Erythrocyte sedimentation rate (ESR) 16 mm/h

What is the SINGLE most likely diagnosis?

- A. Polymyositis**
B. Polymyalgia rheumatic
C. Muscular dystrophy
D. Oesophageal carcinoma
E. Osteoarthritis

The two top differentials here that one should think about is polymyositis and polymyalgia rheumatica.

Proximal muscle weakness and raised creatinine kinase points towards polymyositis. ESR is elevated in 50% of cases in polymyositis but correlates poorly with disease activity and response to therapy.

In this stem, ESR is not elevated enough to consider polymyalgia rheumatica. Also, in polymyalgia rheumatica, creatinine kinase would not be raised. One of the criteria for the diagnosis of polymyalgia rheumatica is having an ESR >30 mm/h or CRP >6 mg/mL of which we do not see in this stem. Hence, the best answer here is polymyositis.

Polymyositis

Clinical Findings

- Usually first present with difficulty with tasks that involve the proximal muscles: lifting objects, combing hair, getting up from the chair.
- The weakness is usually symmetric and diffuse, involving the proximal muscles of the neck, shoulders, trunk, hips, and thighs, the lower limb muscles tending to be clinically symptomatic first.
- Fatigue, myalgia and muscle cramps may also be present.

Investigation:

- Elevation of creatine kinase.
- Aldolase levels may also be raised.
- Autoantibodies: Anti-Jo-1 antibodies. Note that these are more common in patients with polymyositis than in patients with dermatomyositis.
- Muscle biopsy can be diagnostic.



	Treatment <ul style="list-style-type: none">- Involves steroids
24.	<p>A 38 year old man recently had an appendicectomy and has now developed severe pain in his right big toe. He is noted to consume an average of 30 units of alcohol in a week. On examination, the joint of the right big toe is red and swollen. What is the SINGLE most likely diagnosis?</p> <p>A. Rhabdomyosarcoma B. Osteoarthritis C. Gout D. Pseudogout E. Arthritis</p> <p>Drinking too much alcohol can cause uric acid to build up and cause gout.</p> <p>Gout Gout is a disease that affects middle-aged men and presents most commonly with acute monoarthritis.</p> <p>The metatarsophalangeal joint of the first toe is commonly affected (podagra), but other joints like the knee, ankle, PIPs, or DIPs may be initially involved. The first episode commonly occurs at night with severe joint pain waking the patient from sleep. The joint rapidly becomes warm, red, and tender (it looks exactly like cellulitis). Without treatment the joint pain goes away spontaneously in 2 weeks.</p> <p>Certain events that precipitate gout sometimes precede the attack. Question writers very commonly give a scenario where a person has consumed excessive amounts of alcohol or started taking diuretics such as thiazide diuretics or furosemide.</p> <p>Diagnosis The serum uric acid during the acute attack may be normal or low. Remember this it is common that questions ask for the diagnostic method for acute gout. And serum uric acid should never be the answer for those questions. The serum uric acid level is of no value in the diagnosis of acute urate arthropathy. This is why the diagnosis is made by the analysis of synovial fluid.</p> <p>Treatment: Acute management<ul style="list-style-type: none">- NSAIDs- intra-articular steroid injection- Colchicine</p> <p>Chronic hypouricemic therapy:<ul style="list-style-type: none">- Allopurinol should not be started until 2 weeks after an acute attack has settled as it may precipitate a further attack if started too early- NSAID or colchicine cover should be used when starting allopurinol</p>



25.	<p>A 33 year old woman comes in with a 6 month history of painless bilateral swelling of the face and a mild grade fever. The swelling has been progressively increasing in size. She also complains of having worsening symptoms of dry mouth. On a routine chest X-ray, she is found to have bilateral perihilar lymphadenopathy. What is the SINGLE most likely diagnosis?</p> <p>A. Chronic sialadenitis B. Carcinoma of salivary gland C. Lofgren syndrome D. Adenoid cystic carcinoma E. Mikulicz's syndrome</p> <p>Mikulicz's syndrome is the benign persistent swelling of lacrimal and parotid (or submandibular) glands due to lymphocytic infiltration. When no specific cause is found it is called Mikulicz's disease; and if secondary to disease like sarcoidosis or tuberculosis, it is termed as Mikulicz's syndrome. In this case, where it is likely secondary to sarcoidosis given the patient's chest X-ray findings it is termed Mikulicz's syndrome.</p> <p>Mikulicz disease and syndrome has the same clinical picture and it comprises of a triad of: Symmetrical enlargement of all salivary glands Narrowing of the palpebral fissures due to enlargement of the lacrimal glands Dryness of the mouth</p>
26.	<p>A 29 year old man has been having chronic diarrhoea for the past year. He also complains of redness and pain in his right eye. He also has lower back pain and he experiences stiffness and pain which wakes him during early hours of the morning. On examination he is seen to have aphthous ulcers and perianal skin tags. His blood tests show:</p> <p>Haemoglobin 100 g/L White cell count $15 \times 10^9/L$ CRP 43 mg/L Erythrocyte sedimentation rate (ESR) 22</p> <p>What is the SINGLE most likely diagnosis?</p> <p>A. Systemic lupus erythematosus B. Reactive arthritis C. Gout D. Psoriatic arthritis E. Seronegative spondyloarthropathy</p> <p>Seronegative spondyloarthropathy (or seronegative spondyloarthritis) is a group of diseases involving the axial skeleton. The term "seronegative" refers to the fact that these diseases are negative for rheumatoid factor. This indicates that there is a different pathophysiological mechanism of disease when comparing with rheumatoid arthritis.</p>



	<p>Ankylosing spondylitis is one of the seronegative spondyloarthropathies and it is seen here in this stem. The lower back pain and stiffness are consistent with ankylosing spondylitis. He is around the correct age to develop ankylosing spondylitis as well. Ankylosing spondylitis usually occurs before the age of 30 years.</p> <p>The eye manifestations are consistent with acute anterior uveitis which occurs in 20-30% of patients with ankylosing spondylitis. Of all patients presenting with acute anterior uveitis, a third to a half have or will go on to develop ankylosing spondylitis.</p> <p>The chronic diarrhoea, aphthous ulcers and perianal skin tags are consistent with Crohn's disease. You need to remember that there is an increased incidence of ankylosing spondylitis in patients with inflammatory bowel disease (IBD). Ankylosing spondylitis is around 10 - 20 times more common in patients with IBD than it would be seen in the general population.</p> <p>The blood results are also consistent with ankylosing spondylitis.</p> <ul style="list-style-type: none">- Normochromic normocytic anaemia of chronic disease- Elevated ESR and CRP level correlating to disease activity
27.	<p>A 47 year old woman has pallor followed by bluish discolouration of her hands when she goes out into the cold. She has been suffering with this discolouration for the past 3 years. She has symmetrical peripheral arthropathy which has been present for the last year. She also has small pink and red spots on her lips and her fingertips. What is the SINGLE most likely diagnosis?</p> <p>A. Rheumatoid arthritis B. Osteosarcoma C. Limited systemic sclerosis D. Diffuse systemic sclerosis E. Systemic lupus erythematosus</p> <p>This is not a clear cut question and the most likely diagnosis here is limited systemic sclerosis.</p> <p>Both limited and diffuse systemic sclerosis may present with pain in hands when exposed to cold (Raynaud's phenomena). The classical features of Raynaud's phenomenon are episodic pallor of the digits due to ischaemia, followed by cyanosis due to deoxygenation and then followed by redness with pain and tingling which is when there is reperfusion.</p> <p>The presence of the pink and red dots on the lips and tips of fingers represent telangiectasia which is seen as part of the CREST syndrome in limited systemic sclerosis. These are visibly dilated blood vessels that usually appear on the fingers, palms, face, lips and chest.</p> <p>Arthralgia is usually seen more in diffuse systemic sclerosis which goes against the answer of limited systemic sclerosis. In limited systemic sclerosis, the complaint is usually the occasional joint stiffness rather than arthralgia. However, given the slow progression of the disease and no other features of organ involvement, limited systemic sclerosis is likely the answer.</p>



Rheumatoid arthritis is also a potential differential because it is another cause of Raynaud's phenomenon and would explain the symmetrical peripheral arthropathy. Nonetheless, rheumatoid arthritis is a rare cause of Raynaud's phenomenon and an even rarer cause of telangiectasia.

Given the stem, the best answer still remains as limited systemic sclerosis

SAMPLE



SAMPLE



UROLOGY

SAMPLE



1. A 72 year old man brought to the emergency department with onset of paraplegia following a trivial fall. He was treated for prostatic malignancy in the past. What is the SINGLE most likely diagnosis?

- A. Paget's disease
- B. Osteoporotic fracture of vertebrae
- C. Secondary metastasis**
- D. Multiple myeloma
- E. Spondylosis

As patient had prostatic malignancy, pathological fracture from secondary metastasis to bone is more likely the option.

Prostate carcinoma

Risk factors

- Increasing age is the most important risk factor
- Men of black African-Caribbean family origin
- First-degree relative with prostate cancer

Presentation

- Lower urinary tract symptoms (LUTS) do not particularly raise suspicion of prostate cancer because LUTS are common in older men and are rarely the presenting symptom of prostate cancer. However, locally advanced prostate cancer may cause obstructive LUTS

Local disease:

- Raised PSA on screening
- Weak stream, hesitancy, sensation of incomplete emptying, urinary frequency, urgency, urge incontinence
- Urinary tract infection

Locally invasive disease:

- Haematuria, dysuria, incontinence
- Haematospermia
- Perineal and suprapubic pain
- Obstruction of ureters, causing loin pain, anuria, symptoms of acute kidney injury or chronic kidney disease

Metastatic disease:

- Bone pain or sciatica
- Paraplegia secondary to spinal cord compression
- Lymph node enlargement
- Lethargy (anaemia, uraemia)
- Weight loss, cachexia



2.	<p>A 70 year old man with a history of prostatic cancer has severe acute back pain waking him up at night for the past 4 weeks. What is the SINGLE most appropriate investigation?</p> <p>A. MRI spine B. Isotope bone scan C. DEXA scan D. Serum ALP concentration E. Serum calcium concentration</p> <p>Isotope bone scan would be appropriate to identify bone metastasis in prostate cancer.</p> <p>A small amount of radiation dye is injected into the vein and collects in parts of the bone where there are abnormalities</p>
3.	<p>A 25 year old woman presents with urinary frequency, suprapubic pain and dysuria. She has a temperature of 38.5°C. Nitrites and leucocytes are positive on a dipstick. What is the SINGLE most likely diagnosis?</p> <p>A. Schistosomiasis B. Kidney trauma C. Ureteric calculus D. Bladder calculi E. Cystitis</p> <p>Cystitis presents with frequency, dysuria, urgency, haematuria, suprapubic pain. Signs of fever and nitrates and leukocytes points towards a urinary tract infection.</p>
4.	<p>A 33 year old man presents with bilateral flank pain. He is later diagnosed to have bilateral kidney stones. His medical history includes sarcoidosis. What is the SINGLE most likely cause that attributed to the development of his urinary stones?</p> <p>A. Hypercalcemia B. Hyperuricemia C. Diet D. Recurrent urinary tract infection E. Hyperparathyroidism</p> <p>Hypercalcaemia is seen commonly in sarcoidosis. It is due to increased circulation of vitamin D produced by macrophages.</p> <p>Renal stones risk factors There are certain risk factors or drugs that may precipitate renal stones that you need to know for PLAB part 1 as these are the most commonly asked. These are:</p> <ul style="list-style-type: none">- Dehydration- Hypercalcaemia- Polycystic kidney disease- Gout



	<ul style="list-style-type: none">- Loop diuretics
5.	<p>A 35 year old man with painless left testicular enlargement for the past 6 months which is increasing in size. On examination, the left testicle is noted to be 3 times the size of the right testicle. There is no tenderness or redness. What is the SINGLE most likely diagnosis?</p> <p>A. Testicular cancer B. Hydrocele C. Epididymal cyst D. Epididymo-orchitis E. Scrotal haematoma</p> <p>It is important to note where the enlargement is located. One can mistakenly answer epididymal cyst or hydrocele if one does not read the stem properly. Note that the enlargement (sometimes lump or swelling) is of the testical and not scrotum. If it was scrotal swelling, that you can think of hydrocele or epididymal cyst.</p> <p>Testicular cancer</p> <ul style="list-style-type: none">- Majority of testicular tumours arise from the germ cells. <p><i>Testicular germ cell tumours can be subdivided into seminoma and nonseminomatous germ cell tumours however this is unlikely a need to know for this exam. The presentation is the more important information to remember.</i></p> <p>Presentation</p> <ul style="list-style-type: none">- Painless lump in the body of the testis → <i>This is the most common presentation</i> <p>Diagnosis</p> <ul style="list-style-type: none">- Ultrasound is first line- CT scan is used for staging- Appropriate tumour markers should be ordered (<i>unlikely you would need to know in detail for the exam</i>)
6.	<p>A 61 year old man, known smoker, comes to the hospital with complaints of painless frank haematuria. He has been worried about his loss of weight and reduced general activity. Urine microscopy shows red cells but no white cells. What is the SINGLE most diagnostic test?</p> <p>A. Urine culture B. Intravenous urogram C. Transrectal ultrasound and biopsy D. Cystoscopy with biopsy E. Ultrasound of the Kidneys, Ureters & Bladder</p> <p>The two most important risk factors for transitional cell carcinoma of the bladder are:</p> <p>Exposure to aromatic hydrocarbons, e.g. workers in the petrochemical, industrial dye, rubber industries, chimney sweeps. Smoking</p>



	<p>Here they give a history of smoking with loss of weight. The absence of white cells implies a non-infectious cause of the painless frank haematuria. In the elderly, one must always have transitional cell carcinoma of the bladder as part of a differential diagnosis when a patient presents with painless haematuria.</p> <p>Cystoscopy is the most diagnostic test</p>
7.	<p>A 39 year old coal miner was recently diagnosed with bladder cancer. He is a smoker and has a family history of bladder cancer. He also has been diagnosed with benign prostatic hyperplasia. Which SINGLE risk factor is likely to be associated with transitional cell carcinoma of the bladder?</p> <p>A. Family history B. Smoking C. Exposure to coal mine D. Benign prostatic hyperplasia E. Age</p> <p>The two most important risk factors for transitional cell carcinoma of the bladder are:</p> <ul style="list-style-type: none">- Exposure to aromatic hydrocarbons, e.g. workers in the petrochemical, industrial dye, rubber industries, chimney sweeps.- Smoking
8.	<p>A 26 year old sexually active male presents with severe pain in the left scrotum lasting for 4 hours. He complains of a past history with similar episodes of pain over the past 2 years but has never sought treatment before. His scrotum is extremely tender and examination is impossible because of the pain. What is the SINGLE best management for this patient?</p> <p>A. Send home with antibiotic cover B. Ultrasound of scrotum C. Urgent surgical exploration D. Urethral swab E. Midstream urine culture and sensitivity</p> <p>In this stem, mentioning that this young man is sexually active is aiming to distract you from the correct choice. The history of severe pain with a past history of similar episodes of severe pain is indicative of testicular torsion (this is likely due to the testis twisting and then spontaneously resolving). The fact that examination is extremely painful is another hint toward testicular torsion as the diagnosis.</p> <p>Testicular torsion</p> <p>Key features of testicular torsion include:</p> <ul style="list-style-type: none">- Severe, sudden onset testicular pain- Typically affects adolescents and young males



	<ul style="list-style-type: none">- On examination testis is tender and pain not eased by elevation <i>Remember: In testicular torsion, lifting the testis up over the symphysis increases pain, whereas in epididymitis this usually relieves pain.</i>- Urgent surgery is indicated <p>Management:</p> <ul style="list-style-type: none">- Urgent exploratory surgery is needed to prevent ischaemia of the testicle <p>Colour Doppler USS (reduced arterial blood flow in the testicular artery) and radionuclide scanning (decreased radioisotope uptake) can be used to diagnose testicular torsion, but in many hospitals, these tests are not readily available and the diagnosis is based on symptoms and signs. Scrotal exploration should be undertaken as a matter of urgency. Delay in relieving the twisted testis results in permanent ischaemic damage to the testis, causing atrophy.</p> <p><i>This is a very high yield question and in most cases if you suspect testicular torsion the answer would be exploratory surgery (or urgent surgery).</i></p> <p><i>REMEMBER: if clinical suspicion is high, surgical intervention should not be delayed for the sake of further investigation!</i></p>
9.	<p>A 78 year old man with a history of prostate adenocarcinoma has loin pain, anuria, and symptoms of acute kidney injury. What is the SINGLE most appropriate investigation?</p> <p>A. MRI spine B. Radionuclide bone scan C. Transrectal Ultrasound D. Ultrasound KUB E. Abdominal X-ray</p> <p>This man is suffering from obstruction of the ureters due to extension of cancer beyond the capsule causing loin pain and anuria. An ultrasound of the kidney and ureters would be appropriate.</p>
10.	<p>A 79 year old African-Caribbean man comes in complaining of difficulty in passing urine. He has a weak stream, and says that he is unable to completely empty his bladder. 3 months ago he suffered from a urinary tract infection. He also complains of back pain and suprapubic pain. He has lost significant weight and looks cachexic. What is the SINGLE most likely diagnosis?</p> <p>A. Benign prostatic hyperplasia B. Renal cell carcinoma C. Bladder stones D. Prostate cancer E. Urinary tract infection</p> <p>Prostate carcinoma</p>



	<p>Risk factors</p> <ul style="list-style-type: none">- Increasing age is the most important risk factor- Men of black African-Caribbean family origin- First-degree relative with prostate cancer <p>Presentation</p> <ul style="list-style-type: none">- Lower urinary tract symptoms (LUTS) do not particularly raise suspicion of prostate cancer because LUTS are common in older men and are rarely the presenting symptom of prostate cancer. However, locally advanced prostate cancer may cause obstructive LUTS <p><u>Local disease:</u></p> <ul style="list-style-type: none">- Raised PSA on screening- Weak stream, hesitancy, sensation of incomplete emptying, urinary frequency, urgency, urge incontinence- Urinary tract infection <p><u>Locally invasive disease:</u></p> <ul style="list-style-type: none">- Haematuria, dysuria, incontinence- Haematospermia- Perineal and suprapubic pain- Obstruction of ureters, causing loin pain, anuria, symptoms of acute kidney injury or chronic kidney disease <p><u>Metastatic disease:</u></p> <ul style="list-style-type: none">- Bone pain or sciatica- Paraplegia secondary to spinal cord compression- Lymph node enlargement- Lethargy (anaemia, uraemia)- Weight loss, cachexia
11.	<p>A 31 year old presents with sudden onset of flank pain, nausea and vomiting. He recently passed a 4mm stone in his urine. Urine microscopy reveals microscopic haematuria. On ultrasound, a 3mm stone is found in the renal pelvis. What is the SINGLE most appropriate management?</p> <p>A. Extracorporeal shock-wave lithotripsy B. Percutaneous nephrolithotomy C. Open Surgery D. Advise to increase fluid intake E. Urethral catheterisation</p> <p>Renal stones (Kidney stones) management</p> <p>The key question in kidney stones is: When to watch and wait and when not to?</p>



	<p>There is no specific rule of how we treat renal stones. As a rule of thumb, the younger the patient, the larger the stone and the more symptoms it is causing, the more inclined we are to recommend treatment. Because it is so subjective, it is often hard to answer management questions for renal stones. Nonetheless, below are some pointers that will help guide you when answering PLAB questions:</p> <ul style="list-style-type: none">- Stones < 0.5 cm → Just increase fluid intake. Likely to pass spontaneously- Stones 0.5 cm to 2 cm - Extracorporeal shock-wave lithotripsy (ESWL) or Ureteroscopy using dormia basket- Stones > 2 cm → Percutaneous nephrolithotomy
12.	<p>A 16 year old boy complains of having a heavy feeling in the scrotal area. On physical examination, a soft painless swelling in the left scrotum is noticed. The swelling appears like a 'bag of worms' and is less obvious when he is lying supine. What is the SINGLE most appropriate investigation?</p> <p>A. Serum AFP and beta HCG levels B. Exploratory surgery C. Biopsy D. Pen torch transillumination E. Ultrasound Doppler</p> <p>The diagnosis here is varicocele. It is very common to hear complains of feeling heavy in the scrotal area. The blue appearance gives the clue that these are veins. Another key hint is the fact that the question says "left scrotum". Varicocele very commonly presents on the left. The reason the mass is less obvious when lying supine is because gravity allows the drainage of the pampiniform plexus and thus the mass decompresses.</p> <p>Varicocele can be reliably diagnosed with ultrasound, which will show dilation of the vessels of the pampiniform plexus</p> <p>Varicocele A varicocele is an abnormal enlargement of the testicular veins. They are usually asymptomatic but may be important as they are associated with infertility.</p> <p>Infertility is due to elevated scrotal temperatures which has consequent deleterious effects on spermatogenesis</p> <p>Aetiology Incompetent valves in the internal spermatic veins lead to retrograde blood flow, vessel dilatation, and tortuosity of the pampiniform plexus.</p> <p>Varicoceles are much more common on the left side (> 80%) → because testicular vein drains into renal vein → The left internal spermatic (testicular) vein enters the left renal vein at right angles and is under a higher pressure than the right vein which enters the vena cava obliquely at a lower level. As a consequence, the left side is more likely to develop a varicocele.</p>



	<p>Features</p> <ul style="list-style-type: none">- classically described as a 'bag of worms'- subfertility <p>Diagnosis</p> <ul style="list-style-type: none">- Scrotal Doppler - USS: is diagnostic <p>Management</p> <ul style="list-style-type: none">- usually conservative- Occasionally surgery is required if the patient is troubled by pain. There is ongoing debate regarding the effectiveness of surgery to treat infertility
13.	<p>A 15 year old boy presents with testicular pain for 3 days. The pain had a gradual onset. There is no history of trauma. On examination, his right hemi-scrotum is tender. He has a temperature of 38.5°C. What is the SINGLE most appropriate management?</p> <p>A. Give antibiotics B. Give analgesia C. Reassure D. Blood culture E. Exploratory surgery</p> <p>The history here is of epididymo-orchitis. The two major things you need to look out for when someone presents with testicular pain is epididymo-orchitis and testicular torsion. Epididymo-orchitis would have a more gradual onset of symptoms like in this case. His age here is quite misleading as a young boy below the age of 20, the first thought that usually comes to your mind is testicular torsion but as you go on reading, it becomes quite clear that this is actually epididymo-orchitis especially with the gradual onset and the fever.</p> <p>Antibiotics would be the best option here. Obviously analgesia would be given too but more important management would be antibiotics.</p> <p>Epididymo-orchitis</p> <p>Epididymo-orchitis describes an infection of the epididymis +/- testes resulting in pain and swelling. It is most commonly caused by local spread of infections from the genital tract (such as Chlamydia trachomatis and Neisseria gonorrhoeae) or from the bladder.</p> <p>The most important differential diagnosis is testicular torsion. This needs to be excluded urgently to prevent ischaemia of the testicle. Epididymo-orchitis has similar presenting symptoms as testicular torsion. Tenderness is usually localized to the epididymis (absence of testicular tenderness may help to distinguish epididymo-orchitis from testicular torsion, but in many cases, it is difficult to distinguish between the two).</p> <p>Features</p> <ul style="list-style-type: none">- unilateral testicular pain and swelling- urethral discharge may be present, but urethritis is often asymptomatic



	<ul style="list-style-type: none">- factors suggesting testicular torsion include patients < 20 years, severe pain and an acute onset <p>Management</p> <ul style="list-style-type: none">- Antibiotics. In PLAB part 1, it is unlikely you would need to know which type of antibiotics to treat epididymo-orchitis.-
14.	<p>A 65 year old man presents with frank haematuria. He is afebrile and has no other urinary symptoms. There was no history of trauma and he has no relevant medical history. He looks well. Urinary cultures are negative. What is the SINGLE most appropriate investigation that would lead to a diagnosis?</p> <p>A. Intravenous urograms (IVU) B. Ultrasound abdomen C. Cystoscopy D. Urinary biomarkers E. Transrectal ultrasound and biopsy</p> <p>Painless haematuria at this age group must be treated as malignancy of the urinary tract until proved otherwise.</p> <p>PLAB has very limited variations on questions regarding frank haematuria. The usual case is if you see frank haematuria that is asymptomatic, you should be thinking of bladder cancers.</p> <p>Do not substitute urinary biomarkers for cystoscopy to investigate suspected bladder cancer or for follow-up after treatment for bladder cancer, except in the context of a clinical research study.</p> <p>Bladder Cancer</p> <p>Cancer of the bladder (transitional cell cancer in most cases) has a very close correlation with smoking, and usually presents with painless visible haematuria.</p> <p>Risk factors</p> <ul style="list-style-type: none">- Men: are 2.5 times more likely to develop the disease than women, the reasons for which are unclear, but may be associated with greater urine residuals in the bladder- Age: increases risk, most commonly diagnosed in the eighth decade and rare below age 50y.- Smoking: is the major cause of bladder cancer in the developed world.- Occupational exposure: to carcinogens, in particular aromatic hydrocarbons like aniline, is a recognized cause of bladder cancer. <p>Investigation of haematuria</p> <p>After a UTI has been excluded or treated, all patients with persistent microscopic or macroscopic haematuria require investigation of their upper tracts, bladder, and urethra.</p> <p>Urological investigations are tailored according to patient age and symptoms:</p>



	<ul style="list-style-type: none">- Over 40y old with macroscopic haematuria: urgent CTU, cystoscopy, and cytology. <p>CTU is faster and more sensitive than ultrasound or IVU in the detection of renal (parenchymal and urothelial) and ureteric tumours. However, it carries a higher radiation dose and is more expensive. CTU also detects some bladder tumours, but may overcall bladder wall hypertrophy as tumour and will miss flat CIS and urethral pathology so it cannot replace cystoscopy.</p> <p>When would CT-KUB be the answer?</p> <p>CT-KUB requires less radiation dose and is preferred in patients who are more likely to have stone than malignancy.</p> <p>Example</p> <ul style="list-style-type: none">- Patients under 40 years old with macroscopic haematuria- Patients over 40 years old with non-visible haematuria-
15.	<p>A 79 year old man who is being treated with GnRH antagonist for a diagnosed prostate adenocarcinoma attends the clinic. What is the SINGLE most appropriate follow up investigation?</p> <p>A. Serum AFP B. Serum PSA C. Serum acid phosphatase concentration D. Serum ALP isoenzyme concentration E. Prostate cancer antigen 3</p> <p>Serum PSA is currently the best method of detecting localised prostatic cancer and monitoring response to treatment but it lacks specificity, as it is also increased in most patients with benign prostatic hyperplasia. The level of PSA over time would determine the next management of treatment.</p>
16.	<p>A 22 year old sexually active male came with a 2 day history of fever with pain in the scrotal area. There is no history of trauma. On examination, the scrotal skin is red and tender. What is the SINGLE most likely diagnosis?</p> <p>A. Testicular torsion B. Varicocele C. Inguinal hernia D. Epididymo-orchitis E. Mumps</p> <p>The history here is of epididymo-orchitis. The two major things you need to look out for when someone presents with testicular/scrotal pain is epididymo-orchitis and testicular torsion. Epididymo-orchitis would have a more gradual onset of symptoms like in this case. It is quite clear that this is actually epididymo-orchitis especially with the gradual onset and the fever.</p>



	<p>Epididymo-orchitis</p> <p>Epididymo-orchitis describes an infection of the epididymis +/- testes resulting in pain and swelling. It is most commonly caused by local spread of infections from the genital tract (such as Chlamydia trachomatis and Neisseria gonorrhoeae) or from the bladder.</p> <p>The most important differential diagnosis is testicular torsion. This needs to be excluded urgently to prevent ischaemia of the testicle. Epididymo-orchitis has similar presenting symptoms as testicular torsion. Tenderness is usually localized to the epididymis (absence of testicular tenderness may help to distinguish epididymo-orchitis from testicular torsion, but in many cases, it is difficult to distinguish between the two).</p> <p>Features</p> <ul style="list-style-type: none">- unilateral testicular pain and swelling- urethral discharge may be present, but urethritis is often asymptomatic- factors suggesting testicular torsion include patients < 20 years, severe pain and an acute onset <p>Management</p> <ul style="list-style-type: none">- Antibiotics. In PLAB part 1, it is unlikely you would need to know which type of antibiotics to treat epididymo-orchitis.
17.	<p>A 44 year old man presents with a scrotal swelling. The swelling is cystic and is non-tender. It is located in the upper pole of the posterior part of the testes. What is SINGLE most likely diagnosis?</p> <p>A. Epididymal cyst B. Testicular cancer C. Hydrocele D. Varicocele E. Testicular torsion</p> <p>Epididymal cyst</p> <ul style="list-style-type: none">- Derived from the collecting tubules of the epididymis and contains clear fluid. They develop slowly, lie within the scrotum. They are often multiple (multiloculated)- Most common cause of scrotal swellings seen in primary care. <p>Key features that you need to know for PLAB</p> <ul style="list-style-type: none">- Painless- Lie behind and above testis <p>Diagnosis</p> <ul style="list-style-type: none">- Ultrasound <p>Management</p> <ul style="list-style-type: none">- Usually supportive but surgical removal may be attempted for larger or symptomatic cysts



	<p>Note: Differentiating epididymal cyst and hydrocele.</p> <p>Another painless scrotal swelling commonly asked in PLAB is hydrocele. But in these questions, they usually state that it “transilluminates with a pen torch”. Hydrocele is also usually anterior to and below the testicle.</p> <p>Both epididymal cyst and hydrocele transilluminates. So sometimes the only clue in the stem would be “the testis is palpable separately from the cyst (or swelling)” which indicates epididymal cyst. In hydrocele, the testis is palpable within the fluid filled swelling.</p>
18.	<p>A 38 year old man has severe loin pain with nausea and vomiting. Ultrasound shows right hydronephrosis. A non-enhanced computerised tomography scan reveals a 3.2 cm in diameter stone at the level of the minor calyx. What is the SINGLE most appropriate management?</p> <p>A. Percutaneous nephrolithotomy B. Extracorporeal shock-wave lithotripsy C. Increase fluid intake D. Urethral catheterisation E. Stenting</p> <p>Renal stones (Kidney stones) management</p> <p>The key question in kidney stones is: When to watch and wait and when not to?</p> <p>There is no specific rule of how we treat renal stones. As a rule of thumb, the younger the patient, the larger the stone and the more symptoms it is causing, the more inclined we are to recommend treatment. Because it is so subjective, it is often hard to answer management questions for renal stones. Nonetheless, below are some pointers that will help guide you when answering PLAB questions:</p> <ul style="list-style-type: none">- Stones < 0.5 cm → Just increase fluid intake. Likely to pass spontaneously- Stones 0.5 cm to 2 cm - Extracorporeal shock-wave lithotripsy (ESWL) or Ureteroscopy using dormia basket- Stones > 2 cm → Percutaneous nephrolithotomy
19.	<p>A 14 year old boy presents with a 3 hour history of severe left testicular pain. He has no urinary symptoms and is otherwise well. On examination, the right testes looks normal but the left hemiscrotum is swollen and acutely tender. The pain is not eased by elevation of the testes. What is the SINGLE most appropriate initial step?</p> <p>A. Mid stream urine B. Ultrasound scan of the testes C. Urethral Swab D. Exploratory surgery E. Computed tomography scan of the testes</p> <p>This boy is having a testicular torsion.</p>



	<p>Testicular torsion</p> <p>Key features of testicular torsion include:</p> <ul style="list-style-type: none">- Severe, sudden onset testicular pain- Typically affects adolescents and young males- On examination testis is tender and pain not eased by elevation <p><i>Remember: In testicular torsion, lifting the testis up over the symphysis increases pain, whereas in epididymitis this usually relieves pain.</i></p> <ul style="list-style-type: none">- Urgent surgery is indicated <p>Management:</p> <ul style="list-style-type: none">- Urgent exploratory surgery is needed to prevent ischaemia of the testicle <p>Colour Doppler USS (reduced arterial blood flow in the testicular artery) and radionuclide scanning (decreased radioisotope uptake) can be used to diagnose testicular torsion, but in many hospitals, these tests are not readily available and the diagnosis is based on symptoms and signs. Scrotal exploration should be undertaken as a matter of urgency. Delay in relieving the twisted testis results in permanent ischaemic damage to the testis, causing atrophy.</p> <p><i>This is a very high yield question and in most cases if you suspect testicular torsion the answer would be exploratory surgery (or urgent surgery).</i></p> <p><i>REMEMBER: if clinical suspicion is high, surgical intervention should not be delayed for the sake of further investigation!</i></p>
20.	<p>A 57 year old chronic smoker reports three instances in the past 2 weeks when he has had painless, gross, total hematuria. Intravenous urograms (IVU) was done and was reported as normal. In the last month he has been treated for irritative voiding symptoms, but has not been febrile, and urinary cultures have been negative. What is the SINGLE most appropriate next step?</p> <p>A. US Abdomen B. Flexible cystoscopy C. MRI D. Nuclear imaging E. CT-KUB</p> <p>Bladder Cancer</p> <p>Cancer of the bladder (transitional cell cancer in most cases) has a very close correlation with smoking, and usually presents with painless visible haematuria.</p> <p>Risk factors</p> <ul style="list-style-type: none">- Men: are 2.5 times more likely to develop the disease than women, the reasons for which are unclear, but may be associated with greater urine residuals in the bladder- Age: increases risk, most commonly diagnosed in the eighth decade and rare below age 50y.



	<ul style="list-style-type: none">- Smoking: is the major cause of bladder cancer in the developed world.- Occupational exposure: to carcinogens, in particular aromatic hydrocarbons like aniline, is a recognized cause of bladder cancer. <p>Investigation of haematuria</p> <p>After a UTI has been excluded or treated, all patients with persistent microscopic or macroscopic haematuria require investigation of their upper tracts, bladder, and urethra.</p> <p>Urological investigations are tailored according to patient age and symptoms:</p> <ul style="list-style-type: none">- Over 40y old with macroscopic haematuria: urgent CTU, cystoscopy, and cytology. <p>CTU is faster and more sensitive than ultrasound or IVU in the detection of renal (parenchymal and urothelial) and ureteric tumours. However, it carries a higher radiation dose and is more expensive. CTU also detects some bladder tumours, but may overcall bladder wall hypertrophy as tumour and will miss flat CIS and urethral pathology so it cannot replace cystoscopy.</p> <p>When would CT-KUB be the answer?</p> <p>CT-KUB requires less radiation dose and is preferred in patients who are more likely to have stone than malignancy.</p> <p>Example</p> <ul style="list-style-type: none">- Patients under 40 years old with macroscopic haematuria- Patients over 40 years old with non-visible haematuria
21.	<p>A 32 year old woman presents with severe intermittent right sided abdominal pain radiating to the groin which has lasted for 3 hours. She is writhing in pain and vomited twice in the last hour. WBC are $14 \times 10^9/L$ and CRP is 83 mg/l. A urine HCG was negative. What is the SINGLE most likely cause of her abdominal pain?</p> <p>A. Appendicitis B. Ruptured ectopic pregnancy C. Salpingitis D. Ureteric colic E. Strangulated hernia</p> <p>The intermittent right sided abdominal pain radiating to the groin indicates a stone at the lower ureter.</p> <p>Urinary tract stones</p> <p>Clinical features</p> <ul style="list-style-type: none">- 'Ureteric/renal colic'. Severe, intermittent, stabbing pain radiating from loin to groin.- Microscopic or, rarely, frank haematuria.- Systemic symptoms such as nausea, vomiting, tachycardia, pyrexia.- Loin or renal angle tenderness due to infection or inflammation.- Iliac fossa tenderness if the calculus has passed into the distal ureter. <p>Investigations</p>



	<ul style="list-style-type: none">- Raised WCC and CRP suggest superadded infection (should be confirmed by MSU);- Stones often visible on plain abdominal X-ray ('kidneys/ureters/bladder' (KUB)).- Non-contrast spiral CT is the gold standard for locating stones and assessing evidence of complications.- VU will locate stones and show any proximal obstruction.- Renal ultrasound scan for hydronephrosis
22.	<p>A 77 year old African-Caribbean man comes in complaining of difficulty in passing urine. He has a weak stream, and says that he is unable to completely empty his bladder. He also has lower back pain and has lost 10 kg in the last 3 months. An ultrasound shows bilateral hydronephrosis. What is the SINGLE most likely diagnosis?</p> <p>A. Benign prostatic hyperplasia B. Renal cell carcinoma C. Bladder stones D. Prostate cancer E. Urinary tract infection</p> <p>An elderly patient of 77 years with obstructive symptoms of lower urinary tract and bilateral hydronephrosis points towards prostate cancer or benign prostatic hyperplasia. Given that there is weight loss and back pain, one should consider prostatic cancer as a more likely answer.</p>
23.	<p>A 22 year old footballer was struck in the groin by a kick. He presents with severe pain and mild swelling in the scrotum. The pain is not eased by elevation of the testes. What is the SINGLE most appropriate next course of action?</p> <p>A. Ultrasound scan of the testes B. Urethral Swab C. Exploratory surgery D. IV fluids E. Antibiotics</p> <p>There is a possibility of testicular torsion in this question thus exploratory surgery would be the most appropriate next course of action.</p> <p>The key here is to explore the possibility of testicular torsion. The main differential is usually epididymo-orchitis in which the onset of pain is much more gradual. In a patient in whom the onset is dramatic and sudden, then torsion becomes the favourite. Once torsion tops the list, treatment is surgery (for detorsion and orchidopexy). The sooner this happens, the greater the chance of the testis being saved.</p> <p>Testicular torsion</p> <p>Key features of testicular torsion include:</p> <ul style="list-style-type: none">- Severe, sudden onset testicular pain



	<ul style="list-style-type: none">- Typically affects adolescents and young males- On examination testis is tender and pain not eased by elevation <i>Remember: In testicular torsion, lifting the testis up over the symphysis increases pain, whereas in epididymitis this usually relieves pain.</i>- Urgent surgery is indicated <p>Management:</p> <ul style="list-style-type: none">- Urgent exploratory surgery is needed to prevent ischaemia of the testicle <p>Colour Doppler USS (reduced arterial blood flow in the testicular artery) and radionuclide scanning (decreased radioisotope uptake) can be used to diagnose testicular torsion, but in many hospitals, these tests are not readily available and the diagnosis is based on symptoms and signs. Scrotal exploration should be undertaken as a matter of urgency. Delay in relieving the twisted testis results in permanent ischaemic damage to the testis, causing atrophy.</p> <p><i>This is a very high yield question and in most cases if you suspect testicular torsion the answer would be exploratory surgery (or urgent surgery).</i></p> <p><i>REMEMBER: if clinical suspicion is high, surgical intervention should not be delayed for the sake of further investigation!</i></p>
24.	<p>A 15 year old boy was woken up from sleep with severe, sudden pain in the testis. There was no history of trauma. On examination, the testis is tender on palpation. He is afebrile. Analgesia has been given. What is the SINGLE most appropriate next step in management?</p> <p>A. Urethral Swab B. Antibiotics C. Refer urgently to a surgeon D. Reassurance E. Discharge with analgesics</p> <p>There is a possibility of testicular torsion in this question thus exploratory surgery would be the next course of action. Thus, referral to a surgeon would be appropriate.</p>
25.	<p>A 25 year old man has a painful right testis, lower abdominal pain, vomiting and nausea. The testis is swollen, hot, and extremely tender. The onset of pain was dramatic and sudden. He complains of some pain on passing urine. What is the SINGLE most appropriate next course of action?</p> <p>A. Mid stream urine B. Ultrasound scan of the testes C. Urethral Swab D. Urgent surgery E. Antibiotics</p>



	<p>There is a possibility of testicular torsion in this question thus exploratory surgery would be the most appropriate next course of action.</p> <p>The key here is to explore the possibility of testicular torsion. The main differential is usually epididymo-orchitis in which the onset of pain is much more gradual. In a patient in whom the onset is dramatic and sudden, then torsion becomes the favourite. Whilst urinary symptoms are also more common in epididymo-orchitis, they may overlap as part of the general extreme lower abdominal pain seen in torsion. Once torsion tops the list, treatment is surgery (for detorsion and orchidopexy). The sooner this happens, the greater the chance of the testis being saved.</p> <p>Testicular torsion</p> <p>Key features of testicular torsion include:</p> <ul style="list-style-type: none">- Severe, sudden onset testicular pain- Typically affects adolescents and young males- On examination testis is tender and pain not eased by elevation <p><i>Remember: In testicular torsion, lifting the testis up over the symphysis increases pain, whereas in epididymitis this usually relieves pain.</i></p> <ul style="list-style-type: none">- Urgent surgery is indicated <p>Management:</p> <ul style="list-style-type: none">- Urgent exploratory surgery is needed to prevent ischaemia of the testicle <p>Colour Doppler USS (reduced arterial blood flow in the testicular artery) and radionuclide scanning (decreased radioisotope uptake) can be used to diagnose testicular torsion, but in many hospitals, these tests are not readily available and the diagnosis is based on symptoms and signs. Scrotal exploration should be undertaken as a matter of urgency. Delay in relieving the twisted testis results in permanent ischaemic damage to the testis, causing atrophy.</p> <p><i>This is a very high yield question and in most cases if you suspect testicular torsion the answer would be exploratory surgery (or urgent surgery).</i></p> <p><i>REMEMBER: if clinical suspicion is high, surgical intervention should not be delayed for the sake of further investigation!</i></p>
26.	<p>A 74 year old lady who has had a stroke in the past has an indwelling catheter for 10 months. She presents with bluish-purple discolouration of the catheter bag. What is the SINGLE most likely explanation for this?</p> <p>A. Normal change due to long use B. Catheter degradation C. Acidic urine D. Alkaline urine E. Bacterial colonization of the urinary tract</p>



	<p>Purple urine bag syndrome</p> <p>Purple urine bag syndrome is a medical syndrome where purple discoloration of urine occurs in people with urinary catheters and co-existent urinary tract infection. It is a rare phenomenon. Bacteria in the urine produce the enzyme indoxyl phosphatase. This converts indoxyl sulfate in the urine into the red and blue colored compounds indirubin and indigo. One of the most common bacteria implicated is <i>Providencia stuartii</i>.</p>
27.	<p>A 49 year old man presents with severe colicky pain from his right flank radiating to his groin associated with nausea and vomiting. He subsequently develops rigors and a tender abdomen. His urinalysis reveals trace blood. What is the SINGLE next best investigation?</p> <p>A. Ultrasound abdomen B. Kidneys, ureters, and bladder X-ray C. Colonoscopy D. Intravenous pyelogram E. Laparoscopy</p> <p>This is a typical presentation of a ureteric calculus. The pain is severe and associated with nausea and vomiting. Urinalysis or microscopy would reveal blood.</p> <p>X-ray is the answer here. X-rays are still the most commonly used first diagnostic step in diagnosing renal stones. It may not be the best method as it does still miss 20% of stones which are not radio-opaque however it is still cost-effective.</p> <p>In certain UK hospitals, Urologists are moving towards ordering a CT KUB without even having an X-ray performed. The reason behind this is that it is much more accurate than an X-ray and CT scans are now so readily available. For that reason, if the question had an option of Non-enhanced CT scan and asked for "the SINGLE most appropriate diagnostic test" or "the SINGLE most definitive test", pick the CT scan.</p> <p>Plain X-rays of the kidney, ureter and bladder (KUB) are useful in watching the passage of radio-opaque stones (around 80% of stones are of calcium and so will be radio-opaque).</p> <p>Renal Ultrasound scan is sensitive for detecting renal calculi but is variable depending on the series. Some series suggest close to 95% sensitivity for detecting stones, others just 50%. Ultrasound scanning may be helpful to differentiate radio-opaque from radiolucent stones and in detecting evidence of obstruction by looking for hydronephrosis or hydroureter.</p> <p>A combination of plain abdominal radiography and renal ultrasonography is a useful screening test for renal calculi.</p> <p>Non-enhanced CT scanning (spiral non-contrast CT) is now the imaging modality of choice and has replaced intravenous pyelogram (IVP). It is a very accurate method of diagnosing renal and ureteric stones (99% visible). Allows accurate determination of stone size and location and good definition of pelvic anatomy. It also helps exclude differential causes of an acute abdomen (e.g. A ruptured abdominal aortic aneurysm which may present similarly).</p>



28.	<p>A 46 year old man presents to clinic with a scrotal swelling. The swelling is cystic and is non-tender. It developed slowly and it lies above and behind the testis. What is the SINGLE most appropriate diagnostic test?</p> <p>A. Ultrasound B. Pen torch C. Exploratory surgery D. Biopsy E. Serum AFP and β HCG</p> <p>The most probable diagnosis here is an epididymal cyst. This is confirmed with an ultrasound.</p>
29.	<p>A 67 year old man has with a diagnosis of benign prostatic hyperplasia undergoes a transurethral resection of the prostate (TURP). What SINGLE most likely electrolyte abnormality should be expected after the procedure?</p> <p>A. Hypokalemia B. Hypocalcemia C. Hyperkalemia D. Hyponatremia E. Hypernatremia</p> <p>Transurethral resection of the prostate (TURP) is a treatment for benign prostatic hyperplasia. It involves insertion of a resectoscope via the penile urethra. The bladder and prostate are irrigated and prostatic tissues are removed using diathermy.</p> <p>TURP syndrome is rare but can potentially be life threatening that is characterised by hyponatremia. It occurs when irrigation fluid enters the systemic circulation. It is caused by venous destruction and absorption of the irrigation fluid.</p> <p>The management usually involves fluid restriction to correct hyponatremia.</p>
30.	<p>A 62 year old man has been waking up in the middle of the night to use the bathroom. He complains of having difficulty in initiating micturition and dribbling afterwards. A diagnosis of benign prostatic hyperplasia was made after a transrectal ultrasound guided biopsy was performed. He is due for a transurethral resection of the prostate (TURP) later this evening. What SINGLE most likely electrolyte abnormality should be expected after the procedure?</p> <p>A. Hypokalemia B. Hypocalcemia C. Hyperkalemia D. Hyponatremia E. Hypernatremia</p>



	<p>Transurethral resection of the prostate (TURP) is a treatment for benign prostatic hyperplasia. It involves insertion of a resectoscope via the penile urethra. The bladder and prostate are irrigated and prostatic tissues are removed using diathermy.</p> <p>TURP syndrome is rare but can potentially be life threatening that is characterised by hyponatremia. It occurs when irrigation fluid enters the systemic circulation. It is caused by venous destruction and absorption of the irrigation fluid.</p> <p>The management usually involves fluid restriction to correct hyponatremia.</p>
31.	<p>A 20 year old women 6 hours post-lower segment Caesarean section has not passed urine since her operation. She denies any urinary symptoms preoperatively. She appears unwell. She has a temperature of 37°5C, a pulse of 110 beats/minute, a blood pressure of 94/60 mmHg and a respiratory rate of 23 breaths/minute. Her abdomen is distended with tenderness in the left flank and suprapubic region. Bowel sounds are not audible. What is the SINGLE most likely postoperative complication?</p> <p>A. Urinary tract infection B. Urinary tract injury C. Pleurisy D. Pleurisy E. Paralytic ileus</p> <p>Ureteric injuries</p> <p>Ureteric injuries can occur during pelvic or abdominal surgery, e.g. hysterectomy, colectomy.</p> <p>The ureter may be divided, ligated, or angulated by a suture; a segment excised or damaged by diathermy.</p> <p>Internal (iatrogenic) injury diagnosis</p> <ul style="list-style-type: none">- The injury may be suspected at the time of surgery, but injury may not become apparent until some days or weeks post-operatively. <p>Postoperative diagnosis</p> <ul style="list-style-type: none">- The diagnosis is usually apparent in the first few days following surgery, but it may be delayed by weeks, months, or years- It may present with flank pain or post-hysterectomy incontinence (a continuous leak of urine suggests a ureterovaginal fistula)



32.	<p>An 80 year old man has the sensation of incomplete emptying of his bladder. He is going to the toilet more often than usual and is having terminal dribbling. He has lost 9 kg in the last 3 months and recently suffers from pelvic pain. What is the SINGLE most likely diagnosis?</p> <p>A. Benign prostatic hyperplasia B. Renal cell carcinoma C. Bladder stones D. Prostate cancer E. Bladder cancer</p>
33.	<p>A 13 year old boy develops acute pain in his right testicle while playing football. Examination reveals a very tender mass in the right scrotum with reddening of scrotal skin. Lifting the testis causes more pain. What is the SINGLE most likely diagnosis?</p> <p>A. Mumps B. Testicular tumour C. Scrotal abscess D. Epididymo-orchitis E. Testicular torsion</p> <p>Acute swelling of the scrotum in a boy indicates torsion of the testis until proven otherwise. The history of pain developing during sports is very classical of testicular torsion.</p> <p>“Pain worsening on elevation of testis” are key phrases commonly used in the stems that shout out testicular torsion as the answer</p>
34.	<p>A 75 year old man has urinary symptoms of hesitancy, frequency and nocturia. A digital rectal examination reveals a large, irregular, hard asymmetric prostate gland. What is the SINGLE most appropriate investigation that will help with the diagnosis?</p> <p>A. CA 125 B. CA 153 C. CA 199 D. CEA E. PSA</p> <p>A large, irregular, hard asymmetric prostate gland is indicative of prostate cancer.</p> <p>Serum PSA is currently the best method of detecting localised prostatic cancer and monitoring response to treatment but it lacks specificity, as it is also increased in most patients with benign prostatic hyperplasia.</p>



35.	<p>An 85 year old war veteran complains of loss of appetite and says that he has lost weight over the past few months. He says that he has passed some blood in his urine, however, there was no pain. A recent report shows that PSA is 9.5ng/ml. What is the SINGLE most likely diagnosis?</p> <p>A. Benign prostatic hyperplasia B. Renal cell carcinoma C. Bladder stones D. Prostate cancer E. Urinary tract infection</p> <p>-</p>
36.	<p>A 15 year old boy complains of having a heavy feeling in the scrotal area. On physical examination, a soft painless swelling in the left scrotum is noticed. The swelling appears blue in colour and is less obvious when he is lying supine. What is the SINGLE most appropriate management?</p> <p>A. Analgesia B. Antibiotic C. Biopsy D. Immediate surgery E. Reassurance</p> <p>The diagnosis here is varicocele. It is very common to hear complains of feeling heavy in the scrotal area. The blue appearance gives the clue that these are veins. Another key hint is the fact that the question says "left scrotum". Varicocele very commonly presents on the left. The reason the mass is less obvious when lying supine is because gravity allows the drainage of the pampiniform plexus and thus the mass decompresses.</p> <p>Varicocele can be reliably diagnosed with ultrasound, which will show dilation of the vessels of the pampiniform plexus</p> <p>Varicocele A varicocele is an abnormal enlargement of the testicular veins. They are usually asymptomatic but may be important as they are associated with infertility.</p> <p>Infertility is due to elevated scrotal temperatures which has consequent deleterious effects on spermatogenesis</p> <p>Aetiology Incompetent valves in the internal spermatic veins lead to retrograde blood flow, vessel dilatation, and tortuosity of the pampiniform plexus.</p> <p>Varicoceles are much more common on the left side (> 80%) → because testicular vein drains into renal vein → The left internal spermatic (testicular) vein enters the left renal vein at right angles and is under a higher pressure than the right vein which enters the vena cava obliquely at a lower level. As a consequence, the left side is more likely to develop a varicocele.</p>



	<p>Features</p> <ul style="list-style-type: none">- classically described as a 'bag of worms'- subfertility <p>Diagnosis</p> <ul style="list-style-type: none">- Scrotal Doppler - USS: is diagnostic <p>Management</p> <ul style="list-style-type: none">- usually conservative <p>Occasionally surgery is required if the patient is troubled by pain. There is ongoing debate regarding the effectiveness of surgery to treat infertility</p>
37.	<p>An 81 year old afro-caribbean man presents with pain in his lower back and hip. He complains of waking up in the middle of the night to go to the washroom and often he wets himself before reaching the toilet. He also has to urinate much more frequent than in the past and has terminal dribbling. What is the SINGLE most likely underlying diagnosis?</p> <p>A. Benign prostatic hyperplasia B. Prostatitis C. Bladder carcinoma D. Prostate carcinoma E. Urinary tract infection</p> <p>His age, ethnicity and urgency points towards a prostatic pathology. Metastasis to the bones could explain the pain in his back and hips.</p> <p>Frequency, urgency and terminal dribbling are features of prostate cancer. Black men are at greatest risk for prostate cancer.</p> <p>The most frequent sites of metastasis for prostate carcinoma are bone and lymph nodes of the obturator fossae, internal, external and common iliac arteries, and presacral regions.</p>
38.	<p>60 year old patient had a cystoscopy for painless, gross hematuria and pathology revealed transitional cell carcinoma of the bladder. He has smoked a pack a day for the last 15 years and currently works in a coal factory. What is the SINGLE greatest risk factor for transitional cell carcinoma in this patient?</p> <p>A. Coal dust exposure B. Smoking C. Family history D. Lung cancer E. Anatomical defect</p> <p>Whenever you see painless, gross hematuria in an elderly male, you should immediately be thinking of cancer.</p>



	<p>Bladder Cancer</p> <p>Cancer of the bladder (transitional cell cancer in most cases) has a very close correlation with smoking, and usually presents with painless visible haematuria.</p> <p><u>Risk factors</u></p> <ul style="list-style-type: none">- Men: are 2.5 times more likely to develop the disease than women- Age: increases risk, most commonly diagnosed in the eighth decade and rare below age 50.- Smoking: is the major cause of bladder cancer in the developed world.- Occupational exposure: to carcinogens, in particular aromatic hydrocarbons like aniline, is a recognized cause of bladder cancer. This type of occupational exposure occurs mainly in industrial plants processing paint, dye, metal and petroleum products.- Other risk factors include industrial exposure to aromatic amines in dyes, paints, solvents, leather dust, inks, combustion products, rubber and textiles.
39.	<p>A 77 year old man has a long term indwelling urinary catheter. A recent catheter urine sample was sent for culture and sensitivity and was found to have heavy growth of Escherichia coli. What is the SINGLE most appropriate management?</p> <p>A. Reassure the patient B. Prescription for antibiotics C. Bladder washout D. Repeat midstream specimen of urine in 2 weeks E. Change the urinary catheter</p> <p>It is important to note that the stem has not provided symptoms of a urinary tract infection. There is no fever, dysuria or pelvic discomfort. Although patients who have an indwelling urinary catheter are at increased risk of getting an infection there are no signs of any infection at the moment. Changing the catheter would prevent an ascending infection. The usual hospital protocols for long term indwelling urinary catheters would include antibiotics only if the patient has symptoms of a urinary tract infection.</p> <p>A bladder washout is an incorrect answer. It is a technique used to flush out the bladder by introducing saline through your catheter and into your bladder. It is usually used when the catheter is not draining correctly.</p>
40.	<p>A 75 year old man comes in complaining of difficulty in passing urine, poor stream and dribbling at the end of voiding. He has also notice significant weight loss and feels tired all the time. An ultrasound shows bilateral hydronephrosis. What is the SINGLE most likely cause of these findings?</p> <p>A. Benign prostatic hyperplasia B. Renal cell carcinoma C. Bladder stones D. Prostate cancer E. Urinary tract infection</p>



	<p>An elderly patient of 75 years with obstructive symptoms of lower urinary tract and bilateral hydronephrosis points towards prostate cancer or benign prostatic hyperplasia. Given that there is weight loss and tiredness, one should consider prostatic cancer as a more likely answer.</p> <p>-</p>
41.	<p>A 47 year old man comes to the GP with swelling on his left groin which disappears on lying down. The swelling was bluish in colour and felt like a bag of worms. He also complains of a mass in the left loin along with haematuria occasionally. What could be the possible diagnosis?</p> <p>A. Left sided renal cell carcinoma B. Varicosity 2nd to liver disease C. Testicular tumor D. Urinary tract infection E. Inferior vena cava obstruction</p> <p>The bluish swelling that feels like a bag of worms is a perfect description of varicocele.</p> <p>The most common secondary cause of left sided varicocele is renal cell carcinoma. Newly diagnosed varicocele over the age of 40 years are very much suggestive of renal cell carcinoma. Varicocele is common on left side as left testicular veins drain to the left renal vein, while the right testicular vein drain directly into inferior vena cava.</p> <p>It is very common to hear complains of feeling heavy in the scrotal area. The blue appearance gives the clue that these are veins. The reason the mass is less obvious when lying supine is because gravity allows the drainage of the pampiniform plexus and thus the mass decompresses.</p>
42.	<p>A 79 year old African Americans male complains of thirst and fatigue. He has symptoms of frequency, urgency and terminal dribbling. He has lost 8 kg over the last 3 months. Laboratory findings show a calcium of 3.0 mmol/L and haemoglobin of 90g/L. What is the SINGLE most likely underlying diagnosis?</p> <p>A. Benign Prostatic Hyperplasia B. Prostate carcinoma C. Chronic pyelonephritis D. Diabetes Mellitus E. Osteosarcoma</p> <p>Frequency, urgency and terminal dribbling are features of prostate cancer. Black men are at greatest risk for prostate cancer. Weight loss and anaemia is also a feature of prostate cancer.</p> <p>The most frequent sites of metastasis for prostate carcinoma are bone and lymph nodes of the obturator fossae, internal, external and common iliac arteries, and presacral regions.</p> <p>Metastasis to the bones could explain the high serum calcium which in turn results in the symptoms of thirst.</p>



43.	<p>A 58 year old man has renal colic for the past 12 hours. In the last two years, he has presented with three episodes of acute onset of pain in his right knee. What is the SINGLE most likely cause of his renal colic?</p> <p>A. Systemic lupus erythematosus associated glomerulonephritis B. Hypercalcemia C. Chlamydia trachomatis D. Hyperuricemia E. Hyperoxaluria</p> <p>Hyperuricemia is the only one of the choices that has links to both a gouty arthritis and formation of renal stones which causes renal colic.</p>
44.	<p>A 42 year old woman has recently returned from working in the Middle East. She has episodes of loin pain, urinary frequency, dysuria and has passed a urinary stone in the past. She plans to return to the Middle East in a month's time. What is the SINGLE best advice to give to prevent recurrent stone formation?</p> <p>A. Drink less dairy products B. Increase fibre in diet C. Increase fluid intake D. Decrease consumption of calcium related products E. Decrease protein in diet</p> <p>Dehydrations is a risk factor for renal stones. Protein, calcium and fibre consumption have no relevance to urinary stone formation.</p>
45.	<p>A 47 year old woman has had 3 urinary tract infections confirmed with urine culture in the past 8 months. She has been started on cefalexin for prophylaxis. A kidney ureter bladder X-ray has been performed and no renal stones were identified. Ultrasound of the kidneys and ureter show no evidence of hydronephrosis or renal stones. Post voiding residual volume is minimal on a bladder ultrasound. What is the SINGLE most appropriate investigation?</p> <p>A. Cystoscopy B. High vaginal swab C. Low vaginal swab D. Repeat MSU culture and sensitivity E. Dimercaptosuccinic acid (DMSA) scanning</p> <p>Flexible cystoscopy would be the next investigation looking for possible causes of recurrent urinary tract infections.</p> <p>Recurrent urinary tract infection in adults</p> <ul style="list-style-type: none">- Recurrent UTI is defined as more than 2 infections in 6 months or 3 within 12 months- Most commonly caused by reinfection with the original bacterial isolate- Escherichia coli is the most common organism in all patient groups



- There is often an underlying functional or anatomical problem and infection will often not resolve until this has been corrected

Causes of recurrent UTIs

- Incomplete bladder emptying
- Renal or bladder stones
- Indwelling catheter
- Chronic bacterial prostatitis
- Vesicovaginal or colovesical fistula
- Bacteria within an obstructed or atrophic infected kidney

Presentation

- Dysuria
- Frequency
- Urgency
- Suprapubic pain or discomfort
- Cloudy foul-smelling urine

Investigations

- MSU microscopy and culture
- KUB X-ray to detect radio-opaque renal calculi
- Renal and bladder ultrasound
 - o Looking for renal stones
 - o To determine the presence or absence of hydronephrosis
 - o To measure pre-void bladder volume and postvoid residual urine volume
- Flexible cystoscopy to identify abnormalities that may cause recurrent UTIs such as bladder stones, an underlying bladder cancer which is rare, urethral or bladder neck stricture, or fistula

Recurrent cystitis in a man is likely to be secondary to associated conditions like prostatitis, prostatic hyperplasia, calculi in the genitourinary tract, or vesicoureteric reflux.

Management

- Fix any underlying functional or anatomical abnormality if identified
- Low-dose antibiotic prophylaxis → Usually trimethoprim, nitrofurantoin or cephalexin
- If there is residual urine present → optimize bladder emptying by intermittent catheterization
- Oestrogen replacement in post-menopausal women → lack of oestrogen in post-menopausal women causes loss of vaginal lactobacilli and increased colonization by *Escherichia coli*
-



46. A 33 year old woman complains of having urinary urgency for the past year. She urinates more than 8 times a day. She gives a history of having suprapubic pain if her bladder is full, resulting in the need to urinate frequently as suprapubic pain is relieved by voiding. A urine culture was sent and results have come back negative. On cystoscopy, Hunner's ulcers were seen on the bladder wall. What is the SINGLE most likely diagnosis?

- A. Endometriosis
- B. Sexually transmitted infection
- C. Overactive bladder
- D. Bladder cancer
- E. Interstitial cystitis**

Interstitial cystitis (Bladder pain syndrome)

- A chronic and debilitating disorder characterized by urinary frequency, urgency, nocturia, and suprapubic or pelvic pain
- Remains a diagnosis of exclusion after all other causes for the symptoms have been ruled out
- The term 'interstitial cystitis' is usually reserved for patients with typical cystoscopic features

Presentation

- Persistent or recurrent pain perceived in the urinary bladder region
- Suprapubic pain worsening with bladder filling
- Pain relieved by voiding but returns when bladder fills again
- Urinary frequency and urgency
- In women the symptoms are often worse during menstruation

It presents in a similar fashion to symptoms of a urinary tract infection (urgency, frequency, dysuria, suprapubic pain). This is why it is important to send a midstream urine for urine cultures to rule out a UTI.

Investigations

- Cystoscopy for the sole reason of excluding bladder malignancy:
 - o Around 10% of people with interstitial cystitis have Hunner's ulcers. They are reddened mucosal areas associated with small vessels radiating towards a central scar

Management

- First line
 - o Bladder training
 - o Pelvic floor relaxation techniques (avoid pelvic floor exercises)
 - o Avoid triggers like coffee, citrus fruits, smoking which can exacerbate symptoms
 - o Analgesics such as NSAIDS
- Second-line
 - o Amitriptyline → has anticholinergic effects
 - o Oxybutynin



- Gabapentin

Other management unlikely to be asked at this stage

SAMPLE



SAMPLE



VASCULAR SAMPLE SURGERY



1) A 60 year old presents with non-healing ulcers on his calves and a cramp-like pain in the calves relieved by rest. His past medical history includes hypertension, diabetes, and hypercholesterolemia. He also smokes 15 cigarettes a day. Physical examination shows cold extremities absent distal pulses. Which SINGLE advice is unlikely to prevent disease progression?

- A. Quit smoking
- B. Treat hypertension
- C. Treat high cholesterol
- D. Exercise
- E. Omega 3 oils**

The diagnosis here is clear → Peripheral arterial disease. The history of intermittent claudications and non-healing ulcers are key features of it.

Quit smoking is vital. Treat hypertension and high cholesterol. And encourage patients to exercise to the point of maximal pain

Peripheral arterial disease (PAD)

Peripheral arterial disease (PAD) occurs due to atherosclerosis causing stenosis of arteries. This leads to intermittent claudication. Pain comes on walking and after a short rest it goes away.

Symptoms

- *Cramping pain is felt in the calf, thigh, or buttock after walking for a given distance and relieved by rest (Intermittent claudication).*
- *Ulceration, gangrene, and foot pain at rest*
- *Young, heavy smokers are at risk from Buerger's disease (thromboangiitis obliterans)*

Signs

- *Absent femoral, popliteal or foot pulses*

Risk factors:

- *Hypertension*
- *Diabetes Mellitus*
- *Smoking*
- *High cholesterol*

Investigations

- *Ankle-brachial pressure index (ABPI)*
- *Colour duplex USS - 1st line*
- *MR/CT angiography → Only If considering intervention → used to assess extent and location of stenoses and quality of distal vessels. It has largely replaced digital subtraction angiography.*



	<p>Management:</p> <ul style="list-style-type: none">• <i>Risk factor modification: Quit smoking (vital). Treat hypertension and high cholesterol. Prescribe an antiplatelet agent to prevent progression and to reduce cardiovascular risk. Clopidogrel is recommended as 1st-line.</i>• <i>Encourage patients to exercise to the point of maximal pain</i>• <i>Naftidrofuryl oxalate, offer modest benefit and are recommended only in those who do not wish to undergo revascularization and if exercise fails to improve symptoms</i> <p><i>If severely affecting patient's life and disease limited to a single arterial segment</i> → <i>Percutaneous transluminal angioplasty (PTA) (a balloon is inflated in the narrowed segment).</i></p> <p><i>If severely affecting patient's life and atheromatous disease is extensive but distal run-off is good (i.e. distal arteries filled by collateral vessels)</i> → <i>Surgical reconstruction: consider arterial reconstruction with a bypass graft</i></p> <p><i>One of the important differential diagnosis is thromboangiitis obliterans (Buerger's disease) → usually in young men around 40 years with strong smoking history.</i></p> <p>Thromboangiitis obliterans (Buerger's disease):</p> <ul style="list-style-type: none">• <i>Involves small vessels of the lower limbs and occurs in young men who smoke.</i>• <i>It is thought by some workers to be indistinguishable from atheromatous disease.</i>• <i>However, pathologically there is inflammation of the arteries and sometimes veins that may indicate a separate disease entity.</i>• <i>Clinically, it presents with severe claudication and rest pain.</i>• <i>Treatment is as for all peripheral vascular disease, but patients must stop smoking.</i>
2)	<p>A 62 year old man has a painless swelling on his groin. On examination, the mass lies below the midpoint of the right inguinal ligament and is pulsatile. What is the SINGLE most likely diagnosis?</p> <p>A. Direct inguinal hernia B. Indirect inguinal hernia C. Femoral hernia D. Saphena varix E. Femoral artery aneurysm</p> <p><i>The two top differentials here are femoral artery aneurysm and femoral hernia. As the mass is pulsatile, it can only be a femoral artery aneurysm. A femoral hernia appears below and lateral to pubic tubercle, medial to femoral pulse and it is not pulsatile.</i></p> <p>Femoral artery aneurysm</p> <ul style="list-style-type: none">• <i>A less common type of aneurysm</i>• <i>Rarely symptomatic</i>



	<ul style="list-style-type: none">• Usually discovered on routine examination by physician• May experience a pulsating lump or swelling on thigh or radiating pain• Rarely causes numbness in legs due to nerve compression
3)	<p>A 40 year old heavy smoker presents with pain in the calves relieved by rest. These symptoms have been worsening over the last few months. He has a history of hypertension which is well controlled with medication. His distal pulses are difficult to palpate. What is the SINGLE most likely diagnosis?</p> <p>A. Acute limb ischaemia B. Diabetes Mellitus C. Buerger's disease D. Deep vein thrombosis E. Varicose veins</p> <p><i>The diagnosis here is thromboangiitis obliterans (Buerger's disease). It usually presents in young men around 40 years with strong smoking history.</i></p> <p><i>Thromboangiitis obliterans (Buerger's disease): Involves small vessels of the lower limbs and occurs in young men who smoke. It is thought by some workers to be indistinguishable from atheromatous disease. However, pathologically there is inflammation of the arteries and sometimes veins that may indicate a separate disease entity. Clinically, it presents with severe claudication and rest pain. Treatment is as for all peripheral vascular disease, but patients must stop smoking.</i></p>
4)	<p>A 76 year old man suddenly collapsed and died. At post mortem exam, a retroperitoneal haematoma was found due to ruptured abdominal aortic aneurysm. What is the SINGLE most likely underlying aetiology of the aortic aneurysm?</p> <p>A. Atheroma B. Cystic medial necrosis C. Marfan's syndrome D. Polyarteritis nodosa E. Syphilis</p> <p><i>There are many causes of aortic aneurysm but the most typical cause of an aortic aneurysm is atheroma.</i></p> <p><i>Abdominal Aortic Aneurysms Aetiology/Risk factors:</i></p> <ul style="list-style-type: none">• Severe atherosclerotic damage of the aortic wall• Family history• Male sex• Increasing age• Hypertension, smoking



	<ul style="list-style-type: none">• <i>Syphilis</i>• <i>Ehlers Danlos</i>• <i>Marfan's syndrome</i>
5)	<p>A 27 year old man complains of headaches, nose bleeds and pain in the lower limbs on exertion. A radio-femoral delay was noted on examination. His legs are cold and his femoral pulse is difficult to feel. Auscultation reveals a systolic murmur heard in the left infraclavicular area. What is the SINGLE most likely diagnosis?</p> <p>A. Tetralogy of Fallot (TOF) B. Atrial septal defect (ASD) C. Ventricular Septal Defect (VSD) D. Patent ductus arteriosus E. Coarctation of the aorta</p> <p><i>This is a typical late presentation of coarctation of the aorta.</i></p> <ul style="list-style-type: none">• <i>Coarctation of the aorta:</i> <i>If coarctation of the aorta presents late, the patients are usually asymptomatic and the diagnosis is usually made on examination, prompted often by the presence of a murmur or hypertension.</i>• <i>It can cause headache, nosebleeds and leg cramps, particularly with exercise, although claudication is unusual.</i>• <i>BP is high in the arms and low in the legs. This high BP results in epistaxis (nosebleeds)</i>• <i>Lower-limb muscle weakness, or cold feet (poor blood supply) may be the presenting feature</i>• <i>Pulses distal to the obstruction are diminished and delayed. E.g. Femoral pulses are hard to feel, absent foot pulses</i>• <i>Auscultation reveals a systolic or continuous murmur, usually heard in the left infraclavicular area and under the left scapula.</i>
6)	<p>A 68 year old man gets repeated attacks of loss of consciousness and transient ischaemic attacks (TIA). What is the SINGLE most likely cause for his symptoms?</p> <p>A. Atrial fibrillation B. Mitral stenosis C. Aortic stenosis D. Hypertrophic Obstructive Cardiomyopathy E. Carotid artery stenosis</p> <p><i>Carotid artery stenosis would fit this picture perfectly.</i></p> <p><i>The plaque can be stable. As the vessel gets smaller, they can lodge in the vessel wall and restrict</i></p>



	<p><i>blood flow to parts of the brain which that vessel supplies. This ischaemia can either be temporary, yielding a transient ischemic attack, or permanent resulting in a thromboembolic stroke. In this case it caused a TIA and loss of consciousness.</i></p>
7)	<p>A 55 year old smoker presents to the emergency department with complaint of severe left leg and foot pain that began earlier in the day. The pain spreads to the level just above the the inguinal ligament. His past medical history includes hypertension. On examination, he has atrophic skin changes in his left leg and his left limb is cold to touch. He has no palpable pulses in the left lower extremity. Gross motor and sensory functions were intact in the symptomatic leg and foot. What is the SINGLE most likely occluded artery?</p> <p>A. Left femoro-popliteal artery B. Left common iliac artery C. Aortoiliac artery D. Left femoral artery E. Left deep femoral artery</p> <p><i>The answer here is left common iliac artery. Femoral artery and deep femoral artery is less likely as the pain would start below the inguinal ligament. The external iliac artery becomes the femoral artery after it passes under the inguinal ligament. Hence the occlusion would be above the inguinal ligament.</i></p> <p><i>If it was a femoro-popliteal artery occlusion, the pain would be described below the knee.</i></p> <p><i>The option of aorto-iliac artery occlusion is not specific as it does not state if it is right or left. It would also have symptoms of claudication and pain of the buttocks and thighs. Symptoms of erectile dysfunction can also be seen in aorto-iliac artery occlusion.</i></p> <p><i>The ideal answer would actually be an external iliac artery occlusion as there are no symptoms of gluteal pain in the stem. The common iliac bifurcates into internal and external iliac arteries and since there is no mention of symptoms of internal iliac artery obstruction in the stem, an external iliac artery occlusion would actually be the best option if it was given in the exam. However, since it is not an option given, common iliac artery occlusion falls into first place as the answer.</i></p> <p><i>Remember, symptoms of occlusion has to occur distal to the level of occlusion.</i></p>
8)	<p>A 60 year old diabetic presents with non-healing ulcers on his calves and a cramp-like pain in the calves relieved by rest. He does not smoke but has a history of hypertension which is well controlled with medication. Physical examination shows cold extremities with lack of hair around the ankles and absent distal pulses. What is the SINGLE most likely diagnosis?</p> <p>A. Acute limb ischaemia B. Peripheral arterial disease (PAD) C. Buerger's disease D. Deep vein thrombosis E. Varicose veins</p>



	<p><i>The diagnosis here is clear → Peripheral arterial disease. The history of intermittent claudications and non-healing ulcers are key features of it.</i></p> <p><i>The other options are quite unlikely:</i></p> <p><i>Acute limb ischaemia</i> → is acute! The 6 'P'S of acute ischaemia: pale, pulseless, painful, paralysed, paraesthetic, and 'perishingly cold'.</p> <p><i>Buerger's disease</i> → Needs a history of smoking</p> <p><i>Deep vein thrombosis</i> → Pain or tenderness is constant and not of an intermittent claudication pattern. Also does not present with non-healing ulcers</p> <p><i>Varicose veins</i> → Do not have an intermittent claudication pattern pain. They usually come in saying "My legs are ugly"</p>
9)	<p>A 38 year old woman presents with a blood pressure of 160/90 mmHg. She is otherwise asymptomatic. Ultrasound scan of kidneys reveal kidneys of equally reduced size with smooth borders and normal pelvicalyceal system. What is the SINGLE most likely cause of her hypertension?</p> <p>A. Chronic glomerulonephritis B. Chronic pyelonephritis C. Bilateral renal artery stenosis D. Essential hypertension E. Polycystic kidney disease</p> <p><i>The likely diagnosis here is fibromuscular dysplasia which is a form of renovascular disease. Often fibromuscular dysplasia involves both renal arteries and usually presents with a high blood pressure resistant to treatment. The patients are otherwise asymptomatic.</i></p> <p><i>Atrophic kidney or discrepancy in kidney sizes are clues that give off the diagnosis of renal artery stenosis. No mention was given regarding the discrepancy in kidney size in this stem, likely because both renal arteries are stenosed rather than just one.</i></p> <p><i>Renovascular disease</i></p> <ul style="list-style-type: none">• Defined as stenosis of the renal artery or one of its branches <p><i>The two main causes are atherosclerosis and fibromuscular dysplasia.</i></p>



	<p>Signs</p> <ul style="list-style-type: none">• BP resistant to treatment• Worsening renal function after ACE-i/ARB in bilateral renal artery stenosis <p>Tests</p> <ul style="list-style-type: none">• Ultrasound scan shows:<ul style="list-style-type: none">○ Renal size asymmetry (affected side is smaller)○ Disturbance in renal blood flow on Doppler US• CT/MR angiography are more sensitive• Renal angiography is 'gold standard', but perform only after CT/MR angiography as it is invasive <p>Treatment:</p> <ul style="list-style-type: none">• Comprehensive antihypertensive regimens• Transluminal angioplasty and stent placement or revascularization surgery <p><i>Note: Severe decline in renal function may be observed in patients with bilateral renal artery stenosis after initiation of ACE inhibitors.</i></p>
10)	<p>A 44 year old man has sudden severe crushing chest pain radiating to both shoulders and his back. The pain is accompanied by shortness of breath. He is sweating profusely. There was no history of trauma. Examination shows cold peripheries. He is noted to have disproportionately long, slender limbs and long fingers and toes. What is the SINGLE most appropriate diagnosis?</p> <p>A. Myocardial infarction B. Thoracic aortic dissection C. Pulmonary embolism D. Oesophageal perforation E. Motor neuron disease</p> <p><i>The signs and symptoms in this stem points towards an aortic dissection. The majority of patients with aortic dissection, present with a sudden severe pain of the chest or back, classically described as 'ripping'. The cold peripheries are due to reduced blood flow to distal parts of dissection. Disproportionately long, slender limbs and long fingers and toes given in this stem is a hint that he probably has Marfan syndrome which is an added risk factor towards aortic dissection.</i></p> <p><i>Sometimes PLAB questions would also give a difference in blood pressure in limbs on the right and left side of the body.</i></p>



Thoracic Aortic Dissection - Dissecting aneurysm of the thoracic aorta:

Occurs in the poorly controlled hypertensive. The episode resembles an MI, with sudden onset of extremely severe, tearing chest pain that radiates to the back and migrates down shortly after its onset. There may be unequal pulses in the upper extremities, and x-ray shows a wide mediastinum. ECG and cardiac enzymes rule out MI. Definitive diagnosis should be sought by noninvasive means (to avoid high-pressure injection needed for the aortogram). MRI angiogram and transesophageal echocardiogram have been used, but the best option is probably a spiral CT scan. As a rule (riddled with exceptions), dissections of the ascending aorta are treated surgically, whereas those in the descending are managed medically with control of the hypertension in the ICU.

Stanford classification

Type A

- *ascending aorta, 2/3 of cases*
- *surgical management, but blood pressure should be controlled to a target systolic of 100-120 mmHg whilst awaiting intervention*

Type B

- *descending aorta, distal to left subclavian origin, 1/3 of cases*
- *conservative management*
- *bed rest*
- *reduce blood pressure IV labetalol to prevent progression*

DeBakey classification

Type I

- *originates in ascending aorta, propagates to at least the aortic arch and possibly beyond it distally*

Type II

- *originates in and is confined to the ascending aorta*

Type III

- *originates in descending aorta, rarely extends proximally but will extend distally*

Risk factors

- *Approximately 50-75% of patients with dissection will have evidence of hypertension or a previous diagnosis*
- *Other risk factors include smoking and raised cholesterol. The most common risk factor is hypertension*
- *Inherited risks include Marfan's syndrome, Ehlers-Danlos syndrome and familial thoracic aortic aneurysm*



11) A 49 year old man presents with a BP of 160/95 mmHg. He is otherwise asymptomatic. His renal function declined severely after starting ACE inhibitors. What is the SINGLE most likely cause of his hypertension?

- A. Chronic glomerulonephritis
- B. Pheochromocytoma
- C. Bilateral renal artery stenosis**
- D. Essential hypertension
- E. Polycystic kidney disease

Renovascular disease:

Renovascular disease is defined as stenosis of the renal artery or one of its Branches.

The two main causes are atherosclerosis and fibromuscular dysplasia.

Signs: BP resistant to treatment; worsening renal function after ACE-i/ARB in bilateral renal artery stenosis

Tests:

USS: renal size asymmetry (affected side is smaller), disturbance in renal blood flow on Doppler US.

CT/MR angiography are more sensitive.

Renal angiography is 'gold standard', but do after CT/MR as it is invasive

Treatment:

Comprehensive antihypertensive regimens, transluminal angioplasty \pm stent placement or revascularization surgery.

Note: Severe decline in renal function may be observed in patients with bilateral renal artery stenosis after initiation of ACE inhibitors.



12)	<p>A 55 year old man comes to the emergency department with severe abdominal pain and lower back pain. He has a history of a pulsatile swelling in the abdomen. He has a pulse rate of 125 beats/minute and a blood pressure of 70/40 mmHg. What is the SINGLE most appropriate initial management?</p> <p>A. Urgent abdominal computed tomography B. Urgent abdominal ultrasound C. Intravenous fluids 0.9% normal saline to bring systolic blood pressure to 90 mmHg D. Intravenous fluids 0.9% normal saline to bring systolic blood pressure to 120 mmHg E. Dopamine intramuscular injection</p> <p><i>This scenario describes a ruptured aortic aneurism. Immediate intravenous normal saline to raise the blood pressure to 90 mmHg to keep the vital organs perfused till definitive measures are taken. The idea here is to treat major hypovolaemia, but accept moderate degrees of hypotension which is a systolic BP > 90 mmHg.</i></p> <p><i>In such a given case, assume that the problem is a ruptured abdominal aortic aneurysm and commence resuscitative measures, whilst appropriate experts are summoned and relevant emergency confirmatory investigations like an ultrasound or CT scans are performed</i></p>
13)	<p>A 60 year old man has sudden severe chest pain radiating to both shoulders and accompanied by shortness of breath. There was no history of trauma. His medical history includes hypertension. Examination shows cold peripheries and paraplegia. What is the SINGLE most appropriate diagnosis?</p> <p>A. Myocardial infarction B. Thoracic aortic dissection C. Pulmonary embolism D. Oesophageal perforation E. Motor neuron disease</p> <p><i>This is a typical patient. A man in his 60s with hypertension and sudden onset of chest pain. The majority of patients with aortic dissection, present with a sudden severe pain of the chest or back, classically described as 'ripping'. The cold peripheries are due to reduced blood flow to distal parts of dissection. Paraplegia is due to involvement of the spinal arteries. Sometimes PLAB questions would also give a difference in blood pressure in limbs on the right and left side of the body.</i></p>



14)	<p>A 28 year old construction worker was admitted for pain in his right calf while at work which has been increasing over the last 3 months. There is no history of hypertension or diabetes but he is a smoker. On examination, loss of posterior tibial and dorsalis pedis pulsation was noticed along with a non-healing ulcer at the base of the right 1st metacarpophalangeal joint. What is the SINGLE most probable diagnosis?</p> <p>A. Thromboangiitis obliterans B. Sciatica C. Deep venous thrombosis D. Baker's cyst E. Embolus</p> <p><i>The diagnosis here is thromboangiitis obliterans (Buerger's disease). It usually presents in young men around 40 years with strong smoking history. This particular question might be a little confusing and some might argue that an embolus could have cause an acute limb ischaemia causing admission. But given his young age, smoking history, chronic pain that was increasing over a long period, and a non healing ulcer, Buerger's disease fits better.</i></p>
15)	<p>A 70 year old man presents with an acutely painful, pale paralysed and pulseless left leg. He is noted to have an atrial fibrillation that was diagnosed recently. What is the SINGLE most likely diagnosis?</p> <p>A. Peripheral vascular disease B. Cardiovascular syphilis C. Buerger's disease D. Aortic dissection E. Acute limb ischaemia</p> <p><i>Acute limb ischaemia:</i> <i>Is a surgical emergency requiring revascularization within 4 to 8 hours to save the limb. It is usually due to thrombosis in situ, emboli or graft occlusion.</i></p> <p><i>Emboli commonly arise from the heart (Atrial fibrillation; mural thrombus) or aneurysms.</i></p> <p><i>Symptoms and signs:</i> <i>The 6 'P'S of acute ischaemia: pale, pulseless, painful, paralysed, paraesthetic, and 'perishingly cold'.</i></p> <p><i>In patients with known peripheral arterial disease (PAD), sudden deterioration of symptoms with deep duskiness of the limb may indicate acute arterial occlusion.</i></p> <p><i>Management:</i> <i>This is an emergency and may require urgent open surgery or angioplasty</i></p>



16) A 78 year old man has a painless sudden collapse. His pulse is 120 beats/minute, blood pressure of 70/40 mmHg. Examination reveals a mottled skin of the lower body and a pulsatile abdominal mass. What is the SINGLE most likely diagnosis?

- A. Aortic aneurysm**
- B. Mesenteric cyst
- C. Umbilical hernia
- D. Ureteric colic
- E. Gastrointestinal perforation

A “pulsatile abdominal mass” is the key phrase for abdominal aortic aneurysm. One should be able to answer this in less than 3 seconds.

SAMPLE



GOOD LUCK!

SAMPLE

PLAB IS DOABLE!



THE END